
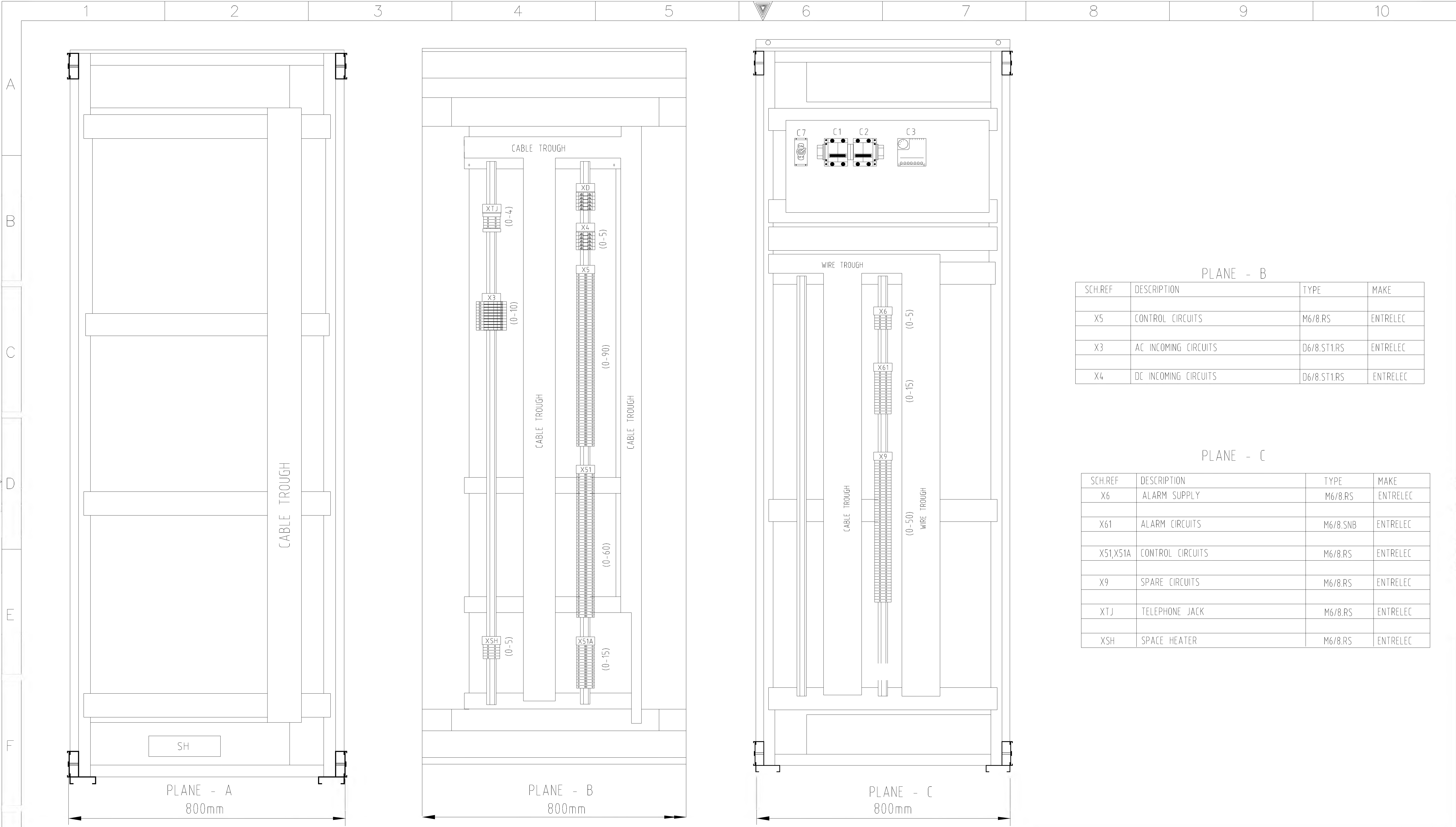


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A	<div><div></div><div><div>POWER SYSTEMS NETWORK MANAGEMENT</div><div>PROTECTION AND SUBSTATION AUTOMATION SYSTEMS</div><div>WBS NO: S-13656</div></div></div>																																										
B																																											
C	<div>CONTRACTOR : ABB Contracting Company</div> <div>CLIENT : National Grid sa</div>																																										
D	<div>PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709</div> <div>SUBSTATION : S/S 8709</div>																																										
E	<div>CONTRACT NO. : 11131113/00</div> <div>TITLE : Assembly Drawing - +UFLS01 [U/F LOAD</div>																																										
F																																											
G	<table><tr><td colspan="3">AS-BUILT BY _____ DATE _____</td><td colspan="2">CONTRACT NO. 11131113/00</td><td colspan="2">JOB ORDER NO. S-13656</td><td colspan="2">ASSEMBLY DRAWING</td></tr><tr><td>01</td><td>13 48</td><td>AS MANUFACTURED</td><td colspan="2">DRAWN BY RIZ</td><td colspan="2">CHECKED BY KVR</td><td colspan="2">13.8kV U/F LOAD SHEDDING - +UFLS01</td></tr><tr><td>00</td><td>13 04</td><td>FOR APPROVAL</td><td colspan="2">DATE STARTED 24.01.2013</td><td colspan="2">DATE COMPLETED _____</td><td colspan="2">S/S 8709 - 132/13.8KV IN AL-KHARJ CITY</td></tr><tr><td>REV. NO.</td><td>DATE</td><td>DESCRIPTION</td><td colspan="2">OPRG. DEPT. CTPD</td><td colspan="2">ENG. DEPT. AUT-PSAC</td><td colspan="2">RIYADH SAUDI ARABIA</td></tr></table>							AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ASSEMBLY DRAWING		01	13 48	AS MANUFACTURED	DRAWN BY RIZ		CHECKED BY KVR		13.8kV U/F LOAD SHEDDING - +UFLS01		00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA	
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00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY																																				
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA																																				







PLANE - B

SCH.REF	DESCRIPTION	TYPE	MAKE
X5	CONTROL CIRCUITS	M6/8.RS	ENTRELEC
X3	AC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
X4	DC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC

PLANE - C

SCH.REF	DESCRIPTION	TYPE	MAKE
X6	ALARM SUPPLY	M6/8.RS	ENTRELEC
X61	ALARM CIRCUITS	M6/8.SNB	ENTRELEC
X51,X51A	CONTROL CIRCUITS	M6/8.RS	ENTRELEC
X9	SPARE CIRCUITS	M6/8.RS	ENTRELEC
XTJ	TELEPHONE JACK	M6/8.RS	ENTRELEC
XSH	SPACE HEATER	M6/8.RS	ENTRELEC

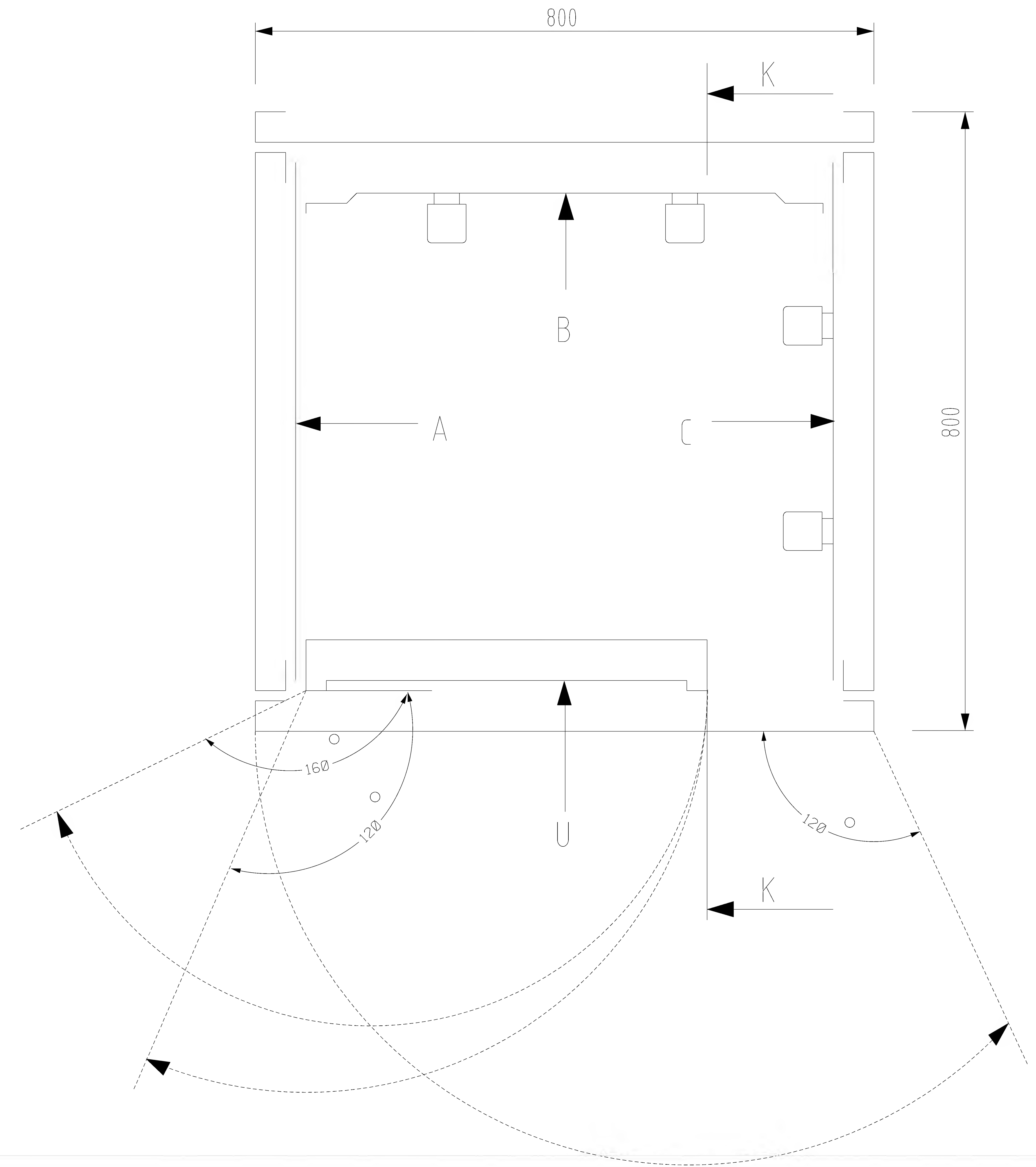
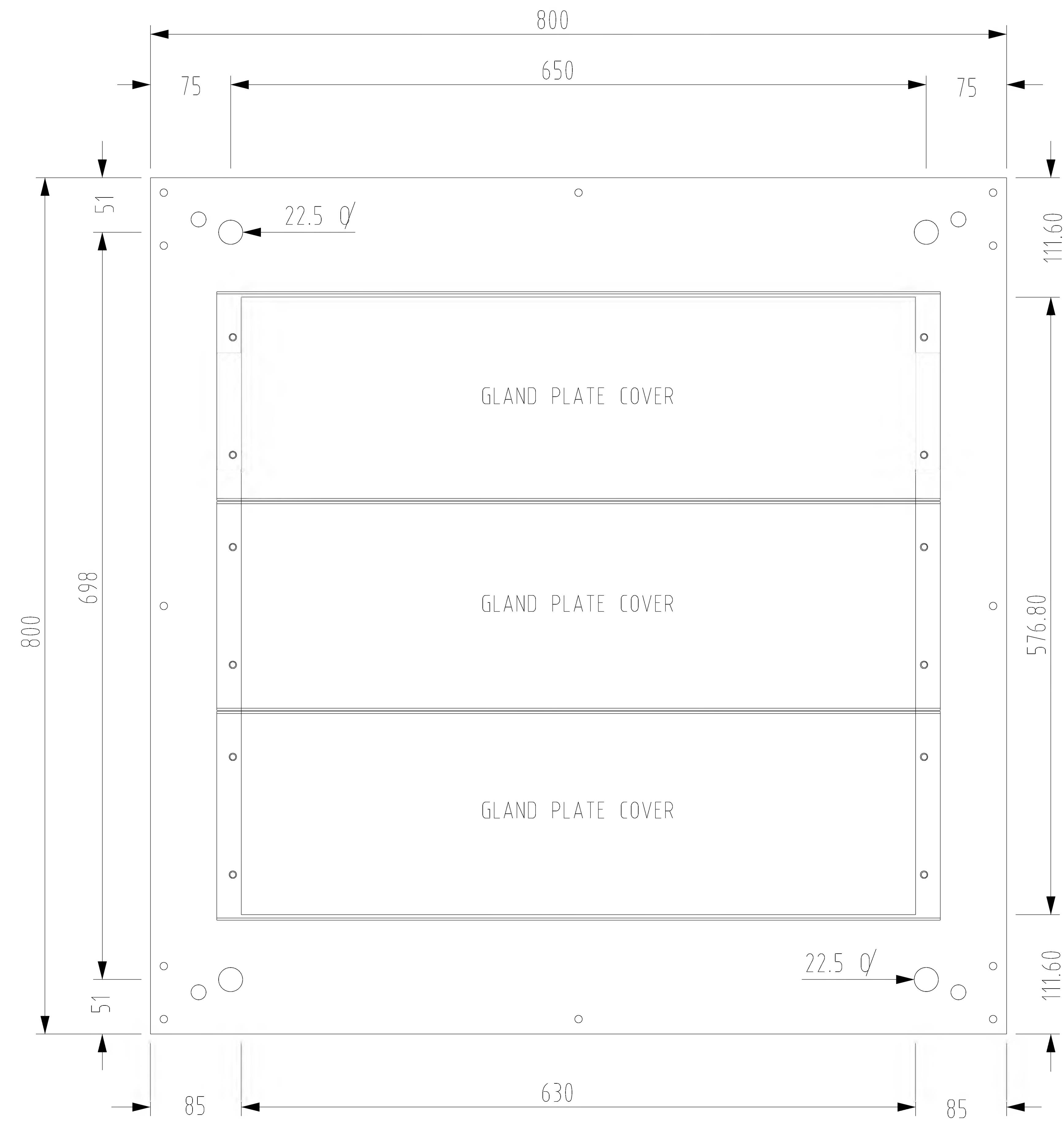
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	00	13 04	FOR APPROVAL			DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY	
REV. NO. DATE DESCRIPTION			OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC			RIYADH SAUDI ARABIA		INDEX -	PLANT NO. C421
								DRAWING NUMBER CD-322963	
								SHEET NO. SHT CONT. 02 03	
								REV. NO. 01	



الشركة الوطنية لنقل الكهرباء

BASE PLATE/  
FOUNDATION

PLAN



AS-BUILT BY \_\_\_\_\_ DATE \_\_\_\_\_ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

ASSEMBLY DRAWING

13.8kV U/F LOAD SHEDDING - +UFLS01

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY  
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



National Grid sa

Ø1	13 48	AS MANUFACTURED
Ø0	13 04	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY RIZ CHECKED BY KVR  
DATE STARTED 24.01.2013 DATE COMPLETED \_\_\_\_\_  
OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322963	SHT CONT.	Ø1
			G03 G04	

NG/D2-D (2012/01)

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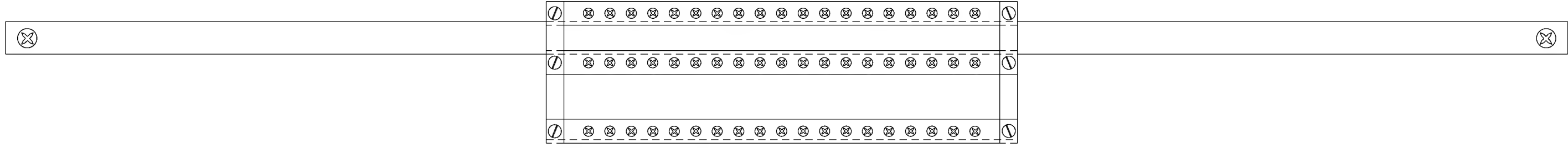
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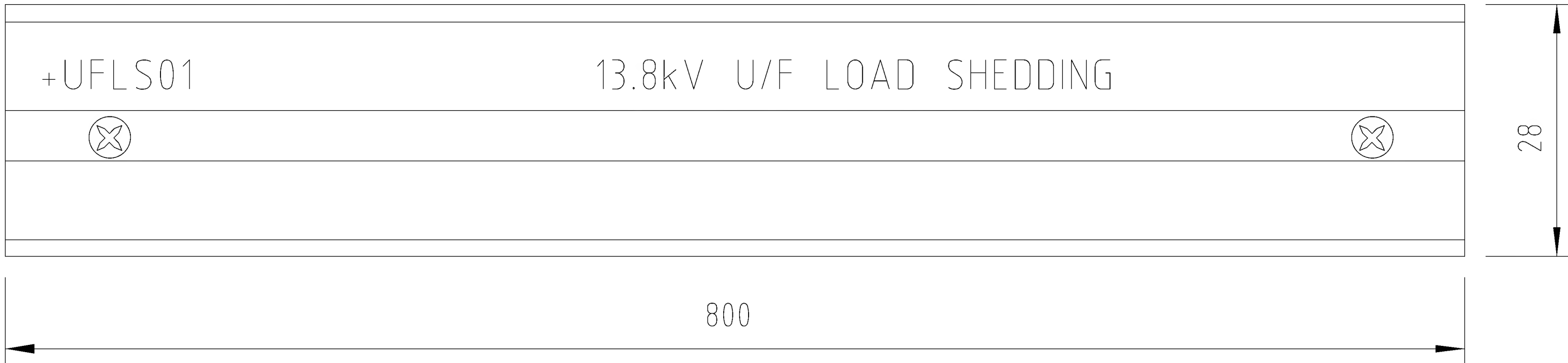
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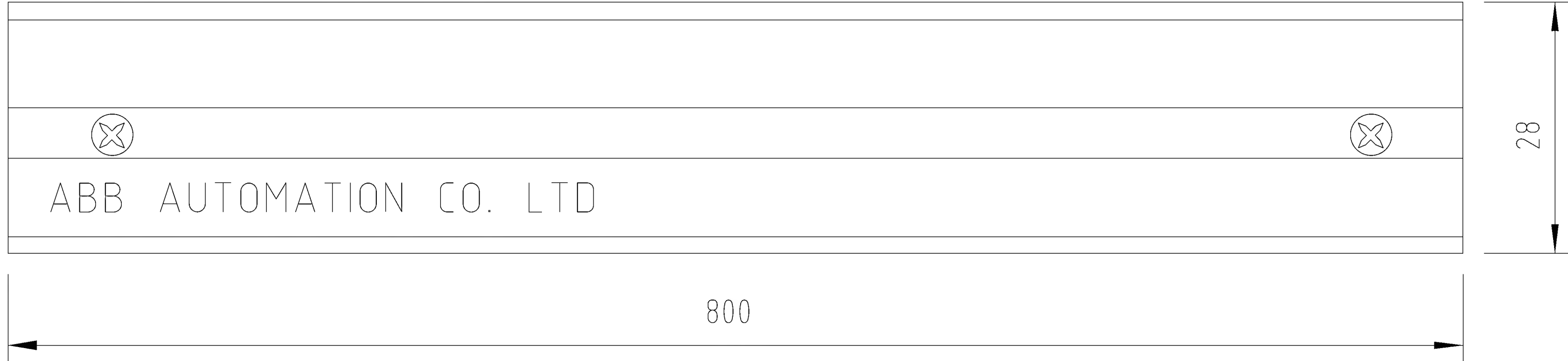


TOP VIEW FOR EARTHING BAR

U PLANE TOP LABEL



U PLANE BOTTOM LABEL



MANUFACTURING LABEL

**ABB**  
ABB Automation Co.Ltd.

PROJECT	:	National Grid SA S/S 8709
ORDER REFERENCE	:	2875 RF S13656
YEAR OF MANUFACTURE	:	2013
PANEL NO.	:	+UFLS01
DRAWING NO.	:	S13656-CD-322964
MADE IN THE KINGDOM OF SAUDI ARABIA		

AS-BUILT BY \_\_\_\_\_ DATE \_\_\_\_\_ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 48	AS MANUFACTURED
00	13 04	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY RIZ CHECKED BY KVR  
DATE STARTED 24.01.2013 DATE COMPLETED \_\_\_\_\_  
OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

ASSEMBLY DRAWING

13.8kV U/F LOAD SHEDDING - +UFLS01  
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY  
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322963	SHT G04	CONT. G05 01


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A			POWER SYSTEMS NETWORK MANAGEMENT PROTECTION AND SUBSTATION AUTOMATION SYSTEMS WBS NO: S-13656					ABB AUTOMATION COMPANY LTD., 414, AL-KHARJ ROAD SECOND INDUSTRIAL CITY RIYADH-11383 K.S.A																																																						
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	TITLE : List of Apparatus - +UFLS01 [U/F LOAD SHEDDING]																																																													
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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS																																																							
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AS-BUILT BY \_\_\_\_\_ DATE \_\_\_\_\_

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

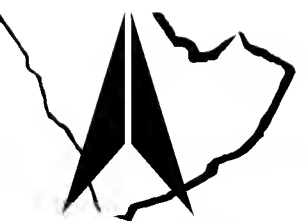
LIST OF APPARATUS

13.8kV U/F LOAD SHEDDING - +UFLS01

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

 **نقل الكهرباء**  
National Grid sa

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AS MANUFACTURED  
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DESCRIPTION

DRAWN BY RIZ

CHECKED BY KVR

DATE STARTED 24.01.2013

DATE COMPLETED

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC

INDEX -

PLANT NO. C421

DRAWING NUMBER CD-322963

SHEET NO. SHT L01

CONT. L02

REV. NO. 01

DMS

VECTOR

NG/D2-D (2012/01)

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AS-BUILT BY \_\_\_\_\_ DATE \_\_\_\_\_

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

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FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

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CHECKED BY KVR

DATE STARTED 24.01.2013

DATE COMPLETED \_\_\_\_\_

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC


LIST OF APPARATUS

13.8kV U/F LOAD SHEDDING - +UFLS01

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

 **نقل الكهرباء**  
National Grid sa

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

SHT

CONT.

REV. NO.

-

C421

CD-322963

L03

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VECTOR

NG/D2-D (2012/01)

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A			LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE	
			U05.5001	U05.5001 94A-1.1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U05.5002	U05.5002 94A-1.2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U05.5003	U05.5003 94A-2.1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
B			U05.5004	U05.5004 94A-2.2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U05.5005	U05.5005 94A-3	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U05.5006	U05.5006 94A-4	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U10.5001	U10.5001 94B-1.1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
C			U10.5002	U10.5002 94B-1.2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U10.5003	U10.5003 94B-2.1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U10.5004	U10.5004 94B-2.2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U10.5005	U10.5005 94B-3	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
D			U10.5006	U10.5006 94B-4	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U14.5001	U14.5001 S01	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U14.5002	U14.5002 S02	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U14.5003	U14.5003 S03	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
E			U14.5004	U14.5004 S04	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U14.5005	U14.5005 S05	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U14.5006	U14.5006 S06	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U14.5007	U14.5007 L1	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
F			U14.5008	U14.5008 L2	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm	
			U17.101	U17.101 74UF	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	3mm	
			U17.113	U17.113 AIX	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm	
			U17.125	U17.125 BIX	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm	
G			U17.137	U17.137 S1305X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm	
			U17.337	U17.337 S1205X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm	
			U17.149	U17.149 S120X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm	
			U17.349	U17.349 S320X	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm	

AS-BUILT BY \_\_\_\_\_ DATE \_\_\_\_\_ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

G			DRAWN BY RIZ CHECKED BY KVR	
	01	13 48	AS MANUFACTURED	
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	REV. NO.	DATE	DESCRIPTION	
			DATE STARTED 24.01.2013 DATE COMPLETED _____	
			OPRG. DEPT. CTPD ENG. DEPT. AUT PSAC	

LIST OF APPARATUS  
13.8kV U/F LOAD SHEDDING - +UFLS01  
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY  
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء		
				National Grid SA		
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	C421	CD-322963		SHT	CONT.	
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NG/D2-D (2012/01)

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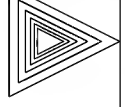
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LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE
C1	C1 127V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C2	C2 220V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C3	C3 THERMOSTAT	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C7	C7 ON/OFF SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
DS	DS DOOR SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
IL	IL ILLUMINATION LAMP	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
SH	SH SPACE HEATER	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS		<div>الشركة الوطنية لنقل الكهرباء</div> <div> <b>نقل الكهرباء</b> National Grid sa</div>		
			DRAWN BY <u>RIZ</u> CHECKED BY <u>KVR</u>		13.8kV U/F LOAD SHEDDING - +UFLS01		13.8kV U/F LOAD SHEDDING - +UFLS01		INDEX		
			DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		PLANT NO.		
			OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT PSAC</u>		RIYADH SAUDI ARABIA		RIYADH SAUDI ARABIA		DRAWING NUMBER		
REV. NO.			DATE			DESCRIPTION			SHEET NO.		
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G	<table><tr><td colspan="3">AS-BUILT BY _____ DATE _____</td><td colspan="2">CONTRACT NO. 11131113/00</td><td colspan="2">JOB ORDER NO. S-13656</td><td colspan="3">COVER SHEET</td></tr><tr><td colspan="3">01 13 48 AS MANUFACTURED</td><td colspan="2">DRAWN BY RIZ CHECKED BY KVR</td><td colspan="5">13.8kV U/F LOAD SHEDDING - +UFLS01</td></tr><tr><td colspan="3">00 13 04 FOR APPROVAL</td><td colspan="2">DATE STARTED 24.01.2013 DATE COMPLETED _____</td><td colspan="5">S/S 8709 - 132/13.8KV IN AL-KHARJ CITY</td></tr><tr><td colspan="3">REV. NO. DATE DESCRIPTION</td><td colspan="2">OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC</td><td colspan="5">RIYADH SAUDI ARABIA</td></tr></table> <table><tr><td>INDEX</td><td>PLANT NO.</td><td>DRAWING NUMBER</td><td>SHEET NO.</td><td>REV. NO.</td></tr><tr><td>-</td><td>C421</td><td>CD-322964</td><td>SHT 000 CONT. 001</td><td>01</td></tr></table>										AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		COVER SHEET			01 13 48 AS MANUFACTURED			DRAWN BY RIZ CHECKED BY KVR		13.8kV U/F LOAD SHEDDING - +UFLS01					00 13 04 FOR APPROVAL			DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY					REV. NO. DATE DESCRIPTION			OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA					INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.	-	C421	CD-322964	SHT 000 CONT. 001	01
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5

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7

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9

10

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B

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D

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F

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CONTENTS		ABB SHT.NO.	REV.00	REV.01	REV.02
COVER SHEET		000	X		
CONTENTS SHEET		001	X		
GRAPHICAL SYMBOLS FOR DIAGRAMS		011	X		
GRAPHICAL SYMBOLS FOR DIAGRAMS		012	X		
COMMON LEGEND		013	X		
FERRULE AND WIRING DETAILS		014	X		
DRAWING REFERENCES		015	X		
DRAWING REFERENCES		016	X		
AC SUPPLY FOR ILLUMINATION & POWER SOCKET		211	X		
CUBIC LIGHTING HEATER & SOCKET ALARM.CKT		212	X		
DC SUPPLY DISTRIBUTIO-BUS A&B		216	X		
TRIP RELAYS-BUS A		221	X		
TRIP RELAYS-BUS A		222	X		
TRIP RELAYS-BUS A		223	X		
IN/OUT SELECTION		223A	X		
TRIP RELAY-BUS B		224	X		
TRIP RELAY-BUS B		225	X		
IN/OUT SELECTION		255A	X		
ST-1&2-BUSA OUTPUT CONTACTS		228	X		
ST-1&2-BUSA OUTPUT CONTACTS		229	X		
ST-1,2,3&4-BUSA OUTPUT CONTACTS		230	X		
ST-3&4-BUSA &B OUTPUT CONTACTS		231	X		
ST-1&2-BUS B OUTPUT CONTACTS		232	X		
ST-1&2-BUS B OUTPUT CONTACTS		233	X		

CONTENTS		ABB SHT.NO.	REV.00	REV.01	REV.02
ST-1,2,3&4-BUS B OUTUT CONTACTS		234	X		
ST-3&4-BUS B OUTUT CONTACTS		235	X		
SPARECONTACTS		293	X		
STN.COMMON ALARM		294	X		
TERMINAL BLOCK ALLOCATION		301	X		

AS-BUILT BY \_\_\_\_\_ DATE \_\_\_\_\_ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

			DRAWN BY RIZ CHECKED BY KVR
01	13 48	AS MANUFACTURED	DATE STARTED 24.01.2013 DATE COMPLETED _____
00	13 04	FOR APPROVAL	OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC
REV. NO.	DATE	DESCRIPTION	

CONTENT SHEET

13.8kV U/F LOAD SHEDDING - +UFLS01

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322964	SHT CONT.	01
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National Grid sa

NG/D2-D (2012/01)

DMS VECTOR

NGD200

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B										
C										
D										
E										
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SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FRAME CONNECTION		MAIN CONTACT OF A CIRCUIT BREAKER		RELAY WITH TWO MAKE CONTACTS, ONE OF THEM DELAYED WHEN OPERATING
	EARTH CONNECTION		PASSING MAKE CONTACT CLOSING MOMENTARILY DURING OPERATION AND RELEASE		RELAY WITH TWO ACTUATORS AND A TWO STABLE POSITIONS
	RESISTOR		BREAK CONTACT DELAYED WHEN OPERATING		SIGNALLING LAMP
	VARIABLE RESISTOR		MAKE CONTACT DELAYED WHEN RELEASING		MECHANICAL INDICATOR WITH AUTOMATIC RESET
	RESISTOR WITH PRESET ADJUSTMENT		TWO MECHANICAL LINKS CROSSING WITHOUT CONNECTION		MECHANICAL INDICATOR WITH NON-AUTOMATIC RESET
	CAPACITOR		JUNCTION OF MECHANICAL LINKS		ELECTRICALLY CONTROLLED MECHANICAL INDICATOR WITH AUTOMATIC RESET
	SEMICONDUCTOR DIODE USED AS A CAPACITIVE DEVICE		AUTOMATIC RESET		ELECTRICALLY CONTROLLED MECHANICAL INDICATOR WITH NON-AUTOMATIC RESET
	OPEN CONTACT, MAKE CONTACT		NON-AUTOMATIC RESET		RELAY WITH MAKE CONTACT
	CLOSED CONTACT, BREAK CONTACT		SWITCHING DEVICE WITH MANUAL OPERATION AND WITH AUTOMATIC RESET		RELAY WITH CHANGE-OVER CONTACT
	CHANGE-OVER CONTACT, BREAK BEFORE MAKE		SWITCHING DEVICE WITH MANUAL OPERATION AND WITH NON-AUTOMATIC RESET		ELECTRO-MECHANICAL POSITION INDICATOR WITH ONE DE-ENERGIZED AND ONE OPERATED POSITION
	MAKE CONTACT WHICH IS EARLY WHEN OPERATING AND LATE WHEN RELEASING		CHANGE-OVER SWITCHING DEVICE WITH MANUAL CONTROL AUTOMATIC RESET FROM POSITION 1-2 TO THE NEUTRAL POSITION		RELAY WITH MAKE CONTACT, DELAYED WHEN OPERATING
	BREAK CONTACT WHICH IS LATE WHEN OPERATING AND EARLY WHEN RELEASING		RELAY WITH MAKE CONTACT		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING
	SWITCHING DEVICE WITH MANUAL CONTROL		RELAY WITH MAKE CONTACT, DELAYED WHEN OPERATING AND RELEASING		BELL, BUZZER
	MAKE CONTACT DELAYED WHEN OPERATING		RELAY WITH MAKE CONTACT, DELAYED WHEN OPERATING AND RELEASING		SIREN , HORN
	BREAK CONTACT DELAYED WHEN RELEASING				
	MAIN CONTACT OF A SWITCH DISCONNECTOR				
	MAIN CONTACT OF A DISCONNECTOR				

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		GRAPHICAL SYMBOLS FOR DIAGRAMS			<div>نقل الكهرباء</div> <div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>				
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	01	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kV U/F LOAD SHEDDING - +UFLS01			INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY									SHT		
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA			-		C421		CD-322964		012 013		01



	1	2	3	4	5		6	7	8	9	10
A	<div>LEGENDS</div>										
B	*R1	DC SUPPLY - MAIN PROTECTION / TCS	ON	CB NORMALLY OPEN AUXILIARY CONTACT							
	*R2	DC SUPPLY - SECONDARY PROTECTION / TCS	OFF	CB NORMALLY CLOSED AUXILIARY CONTACT							
	*R3	DC SUPPLY - BACK UP PROTECTION	A	COMMON							
C	±LSC	DC SUPPLY - LOAD SHEDDING CONTROL	T	TEST POSITION							
	*S1	DC SUPPLY - ALARM UNIT - 1	S	SERVICE POSITION							
	*S2	DC SUPPLY - ALARM UNIT - 2	CS	CLOSE IN SERVICE POSITION							
	*S3	DC SUPPLY - ALARM UNIT - 3	CT	CLOSE IN TEST POSITION							
	*S4	DC SUPPLY - ALARM UNIT - 4	LS	LOCAL SERVICE							
	ISC*	DC SUPPLY - INDICATIONS IN CONTROL PANEL	LT	LOCAL TEST							
	ISCL	DC SUPPLY - LAMP TEST IN CONTROL PANEL	LC	LOCAL CLOSE							
	ISR*	DC SUPPLY - INDICATIONS IN RELAY PANEL	LO	LOCAL OPEN							
	ISRL	DC SUPPLY - LAMP TEST IN RELAY PANEL	RO	REMOTE OPEN							
	FL	DC SUPPLY - FLASHING CIRCUIT									
	BB RS*	DC SUPPLY - BUS BAR - PROTECTION RESET									
	BB CBF*/CBF*	DC SUPPLY - CBF PROTECTION									
	FR1*	DC SUPPLY - FAULT RECORDER - 1									
	FR2*	DC SUPPLY - FAULT RECORDER - 2									
	ANN*	DC SUPPLY - ALARM UNITS									
D	AD	ACKNOWLEDGE BUS - ALARM SYSTEM									
	R	RESET BUS - ALARM SYSTEM									
	CR	CONTROL ROOM									
	ECC	ENERGY CONTROL CENTRE									
	LOCAL	THE LOCATION OF CONTROLLED DEVICE									
	REMOTE	ANY OTHER LOCATION NOT LOCAL									
	XECC	CB / ISOLATOR ZYX - CONTROL COMMON TO SCADA									
	XECCC	CB / ISOLATOR ZYX - CONTROL CLOSE FROM SCADA									
	XECCO	CB / ISOLATOR ZYX - CONTROL OPEN FROM SCADA									
	XCR	CB / ISOLATOR ZYX - OPERATION FROM CONTROL ROOM									
	XRC	CB / ISOLATOR ZYX - CLOSE FROM REMOTE									
	XRO	CB / ISOLATOR ZYX - OPEN FROM REMOTE									
	XRCT	CB ZYX - REMOTE CLOSE "TEST" POSITION									
	XRCS	CB ZYX - REMOTE CLOSE "SERVICE" POSITION									
	E	XRO	CB ZYX - REMOTE OPEN								
XCRO		CB ZYX - OPEN FROM CONTROL ROOM									
XCRC		CB ZYX - CLOSE FROM CONTROL ROOM									
		(ZYX - DENOTES DEVICE NO e.g. 134,136 OR 130 ETC. Ex: 34ECCC DENOTES CLOSING OF ISOLATOR 134 FROM SCADA) 30CRC DENOTES CB 130 CLOSE COMMAND FROM CONTROL ROOM)									
F											

ON

CB NORMALLY OPEN AUXILIARY CONTACT

OFF

CB NORMALLY CLOSED AUXILIARY CONTACT

A

COMMON

T

TEST POSITION

S

SERVICE POSITION

CS

CLOSE IN SERVICE POSITION

CT

CLOSE IN TEST POSITION

LS

LOCAL SERVICE

LT

LOCAL TEST

LC

LOCAL CLOSE

LO

LOCAL OPEN

RO

REMOTE OPEN

AS-BUILT BY \_\_\_\_\_ DATE \_\_\_\_\_ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

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FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ CHECKED BY KVR

DATE STARTED 24.01.2013 DATE COMPLETED \_\_\_\_\_

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC


COMMON LEGEND

13.8kV U/F LOAD SHEDDING - +UFLS01

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

 **نقل الكهرباء**  
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INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322964	SHT 013 CONT. 014	01

NG/D2-D (2012/01)

DMS VECTOR

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2

3

4

5

6

7

8

9

10

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ABB

PROTECTION & SUBSTATION  
AUTOMATION

MANUFACTURER

SCHEMATICS DWG.NO

PANEL DESCRIPTION

PANEL  
REFERENCE

SS 8709 13.8KV RELAY PANELS

CD-322952

13.8KV Capacitor Bank-1 Protection Panel

+CBP-1

CD-322954

13.8KV Capacitor Bank-2 Protection Panel

+CBP-2

CD-322956

13.8KV Capacitor Bank-2 Protection Panel

+CBP-3

CD-322958

13.8 KV ACCS PANEL

+ACCS

CD-322962

13.8KV ACSE PANEL

+ACSE

CD-322968

13.8KV Under Voltage Load Shedding Panel

+UVLS

CD-322964

13.8KV Under Frequency Load Shedding Panel-1

+UFLS01

CD-322966

13.8KV Under Frequency Load Shedding Panel-2

+UFLS02

AS-BUILT BY

DATE

CONTRACT NO.

11131113/00

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S-13656

DRAWING REFERENCES

13.8kv U/F LOAD SHEDDING - +UFLS01

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY  
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

National Grid sa

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

SHT

CONT.

REV. NO.

-

C421

CD-322964

016

211

01

REV. NO.

DATE

DESCRIPTION

DRAWN BY

RIZ

CHECKED BY

KVR

DATE STARTED

24.01.2013

DATE COMPLETED

OPRG. DEPT.

CTPD

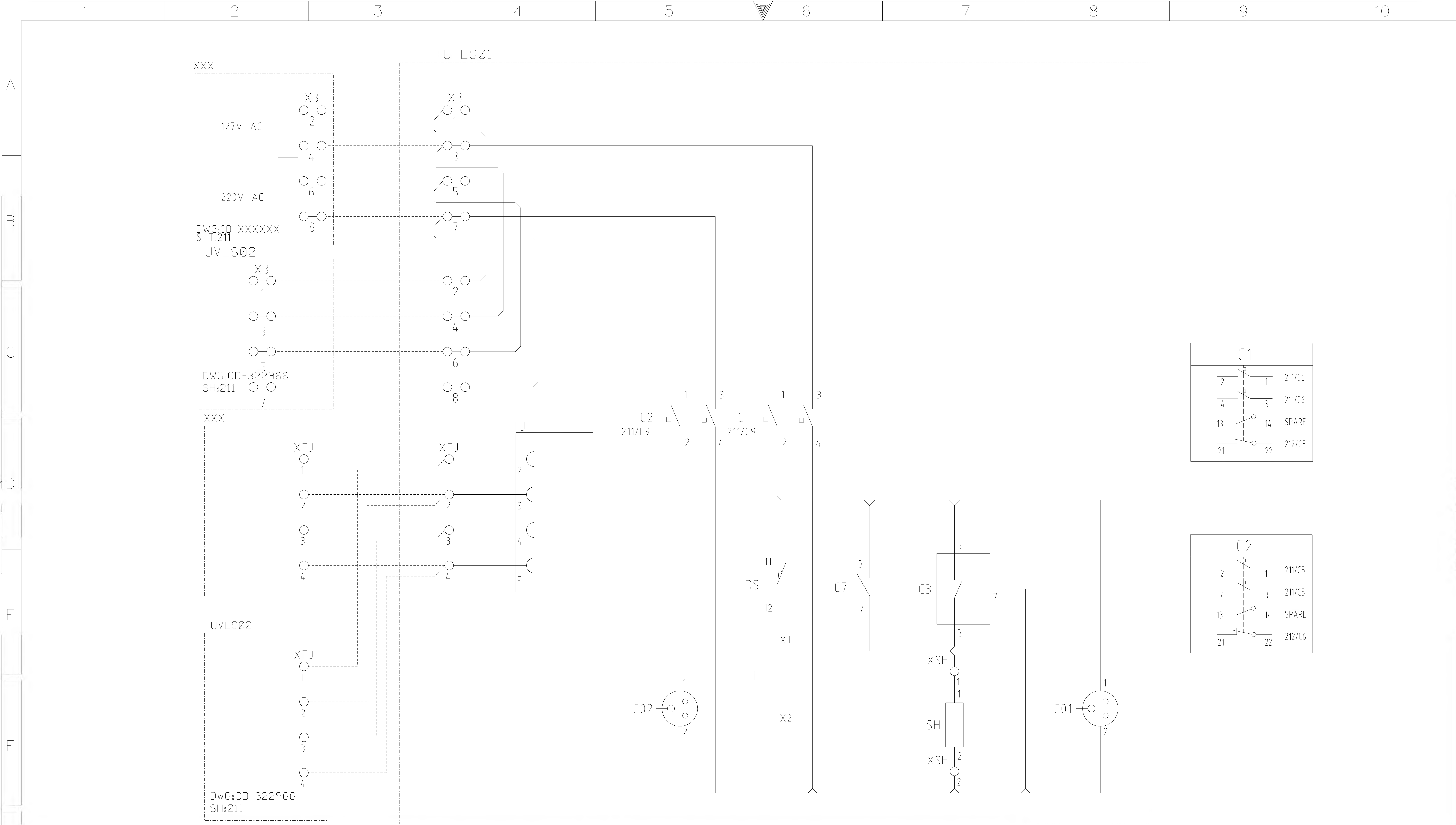
ENG. DEPT.

AUT-PSAC

DMS

VECTOR

NG/D2-D (2012/01)



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		AC SUPPLY FOR ILLUMINATION & POWER SOCKET		
			DRAWN BY RIZ		CHECKED BY KVR		13.8kV U/F LOAD SHEDDING - +UFLS01		
01 13 48 AS MANUFACTURED			DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		
00 13 04 FOR APPROVAL			OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		
REV. NO.	DATE	DESCRIPTION					INDEX	PLANT NO.	DRAWING NUMBER
							-	C421	CD-322964
									SHEET NO. SHT 211
									CONT. 212
									REV. NO. 01



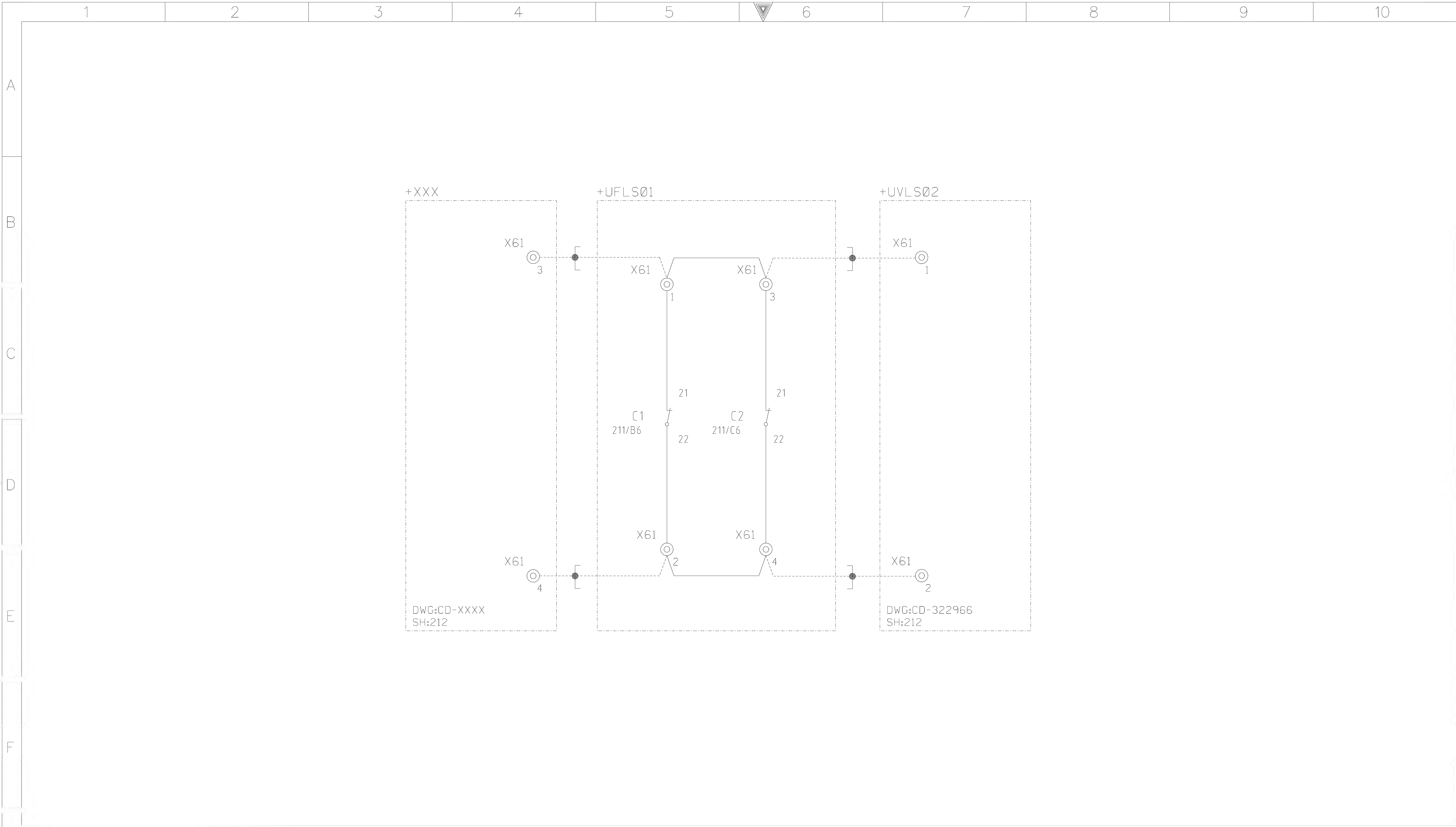
الشركة الوطنية لنقل الكهرباء

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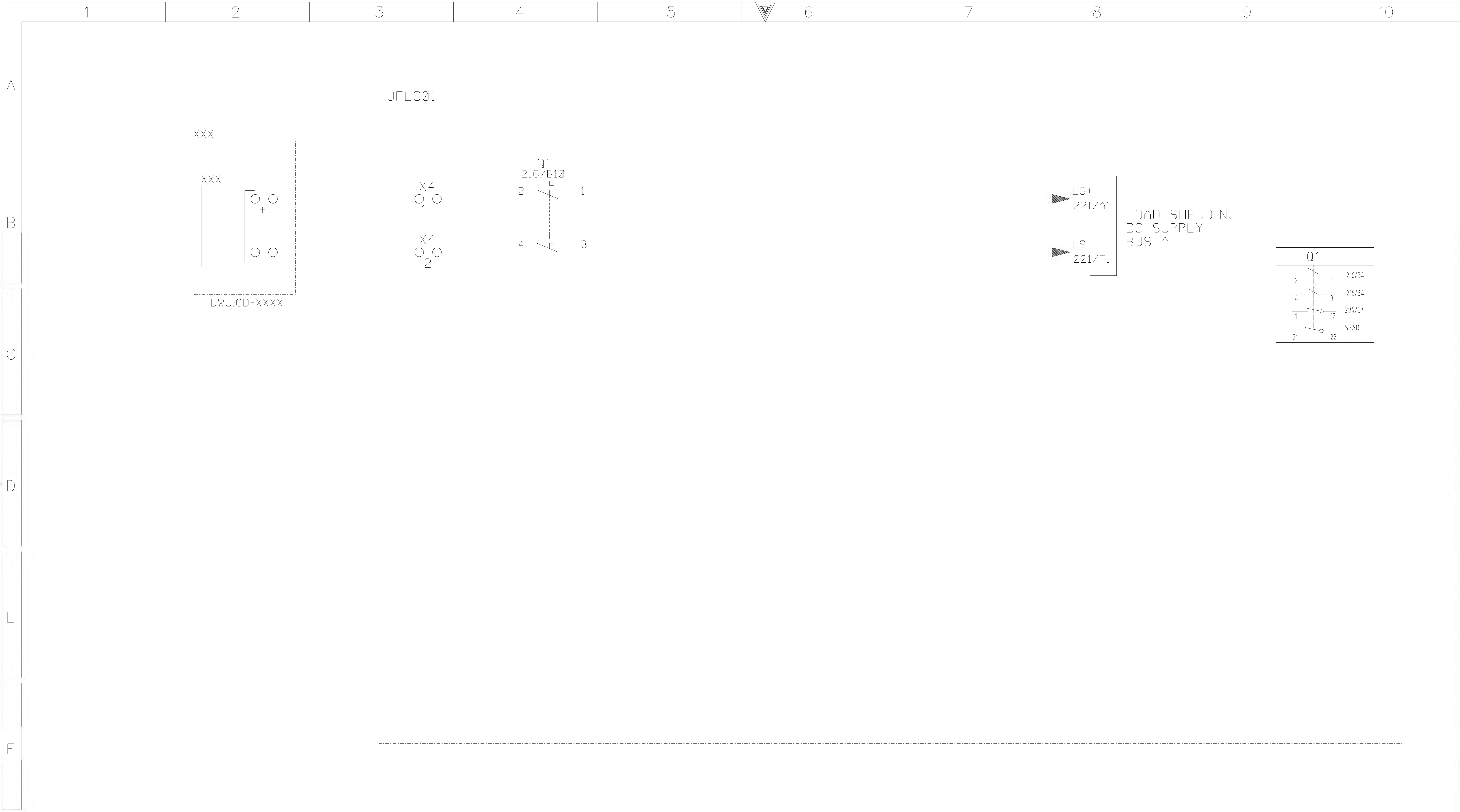
DMS

VECTOR

NGD200



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		CUB. LIGHTING, HEATER & SOCKET ALARM CKT.			<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>											
G	01	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kV U/F LOAD SHEDDING - +UFLS01														
	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY														
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA														
										INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.			
										-		C421		CD-322964		SHT 212		CONT. 216		01	
										NG/D2-D (2012/01)											
										DMS		VECTOR		NGD200							



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DC SUPPLY DISTRIBUTION - BUS A&B			<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>									
DRAWN BY RIZ			CHECKED BY KVR				13.8kV U/F LOAD SHEDDING - +UFLS01												
DATE STARTED 24.01.2013			DATE COMPLETED _____				S/S 8709 - 132/13.8KV IN AL-KHARJ CITY			INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.	
OPRG. DEPT. CTPD			ENG. DEPT. AUT-PSAC				RIYADH			-		C421		CD-322964		SHT 216		CONT. 221	
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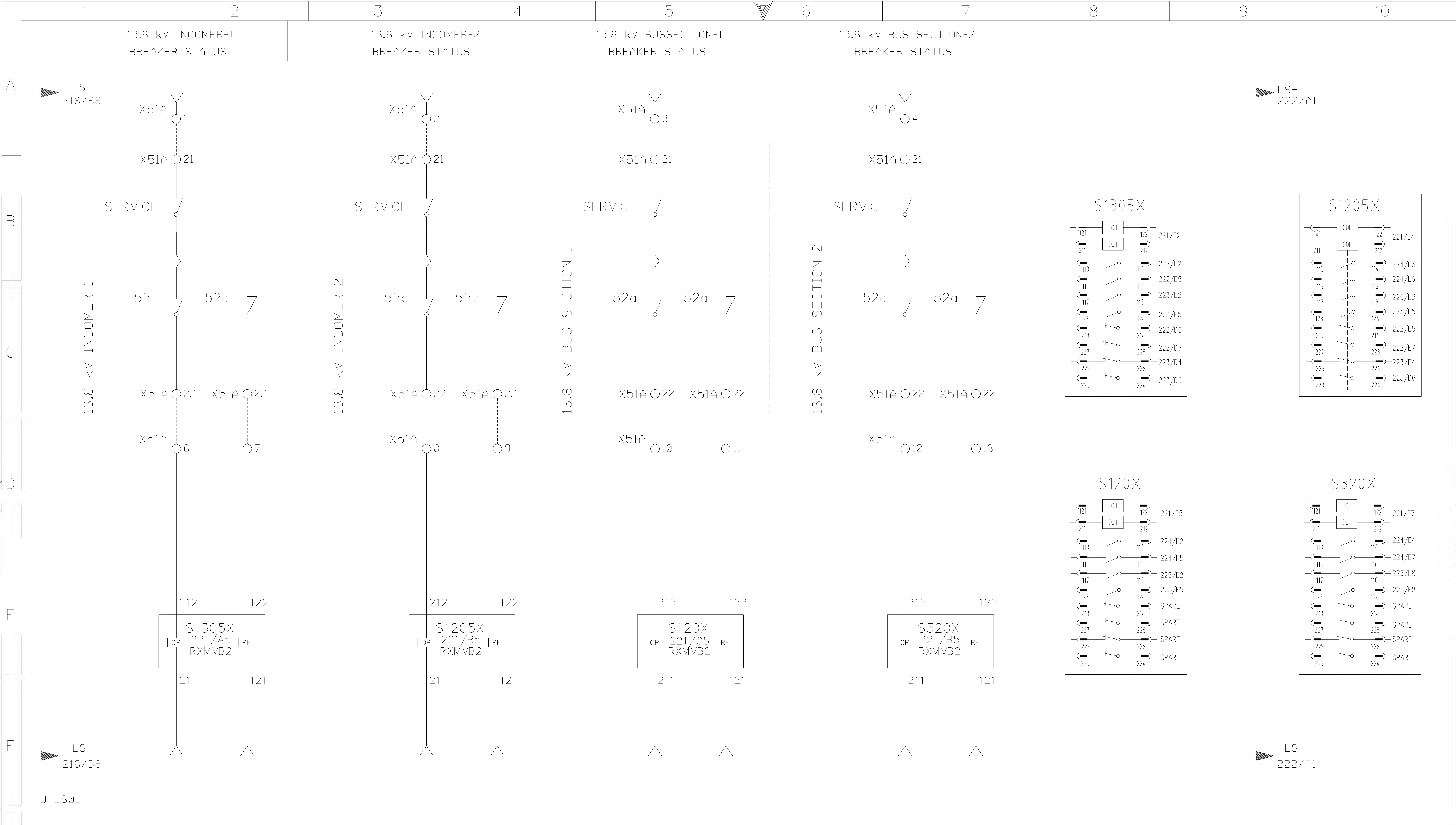
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DMS

VECTOR

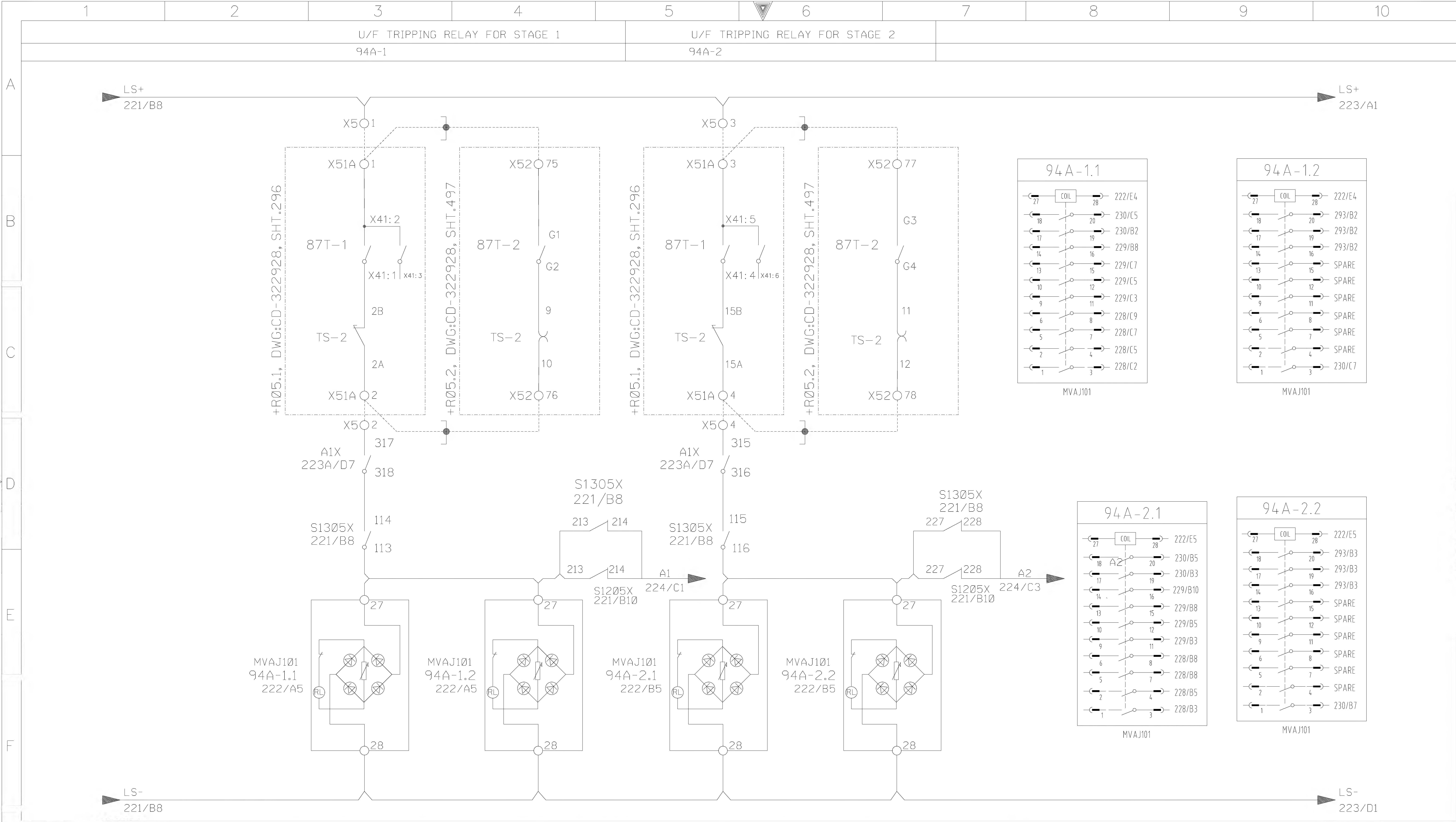
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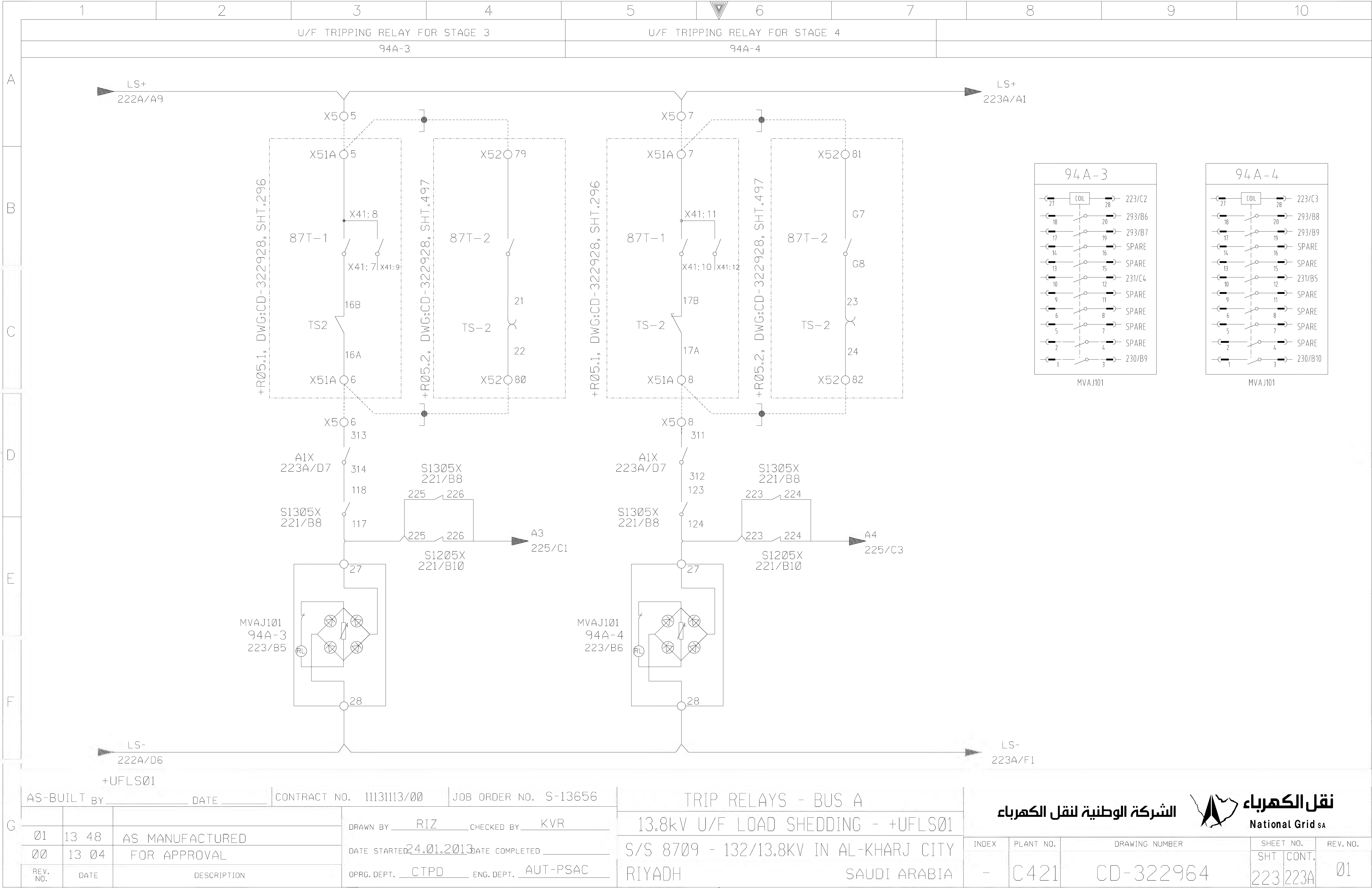


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00 13 04 FOR APPROVAL			DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		
REV. NO. DATE DESCRIPTION			OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		

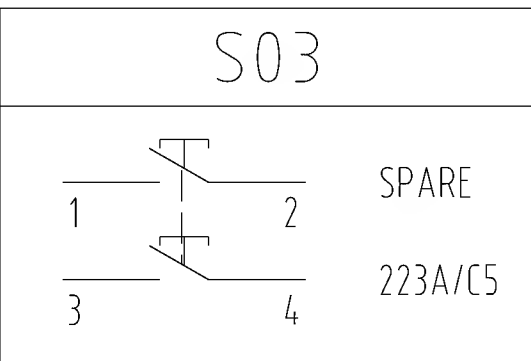
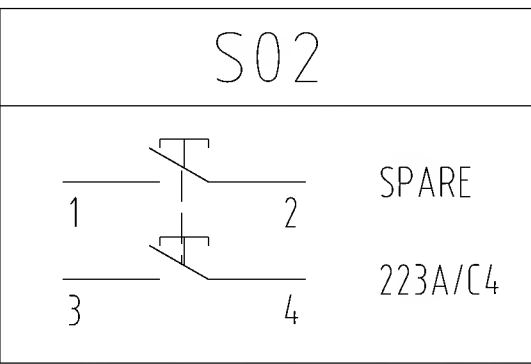
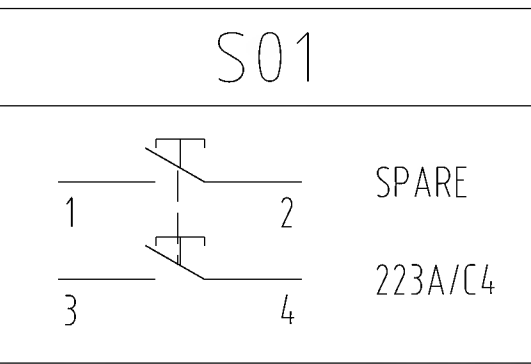
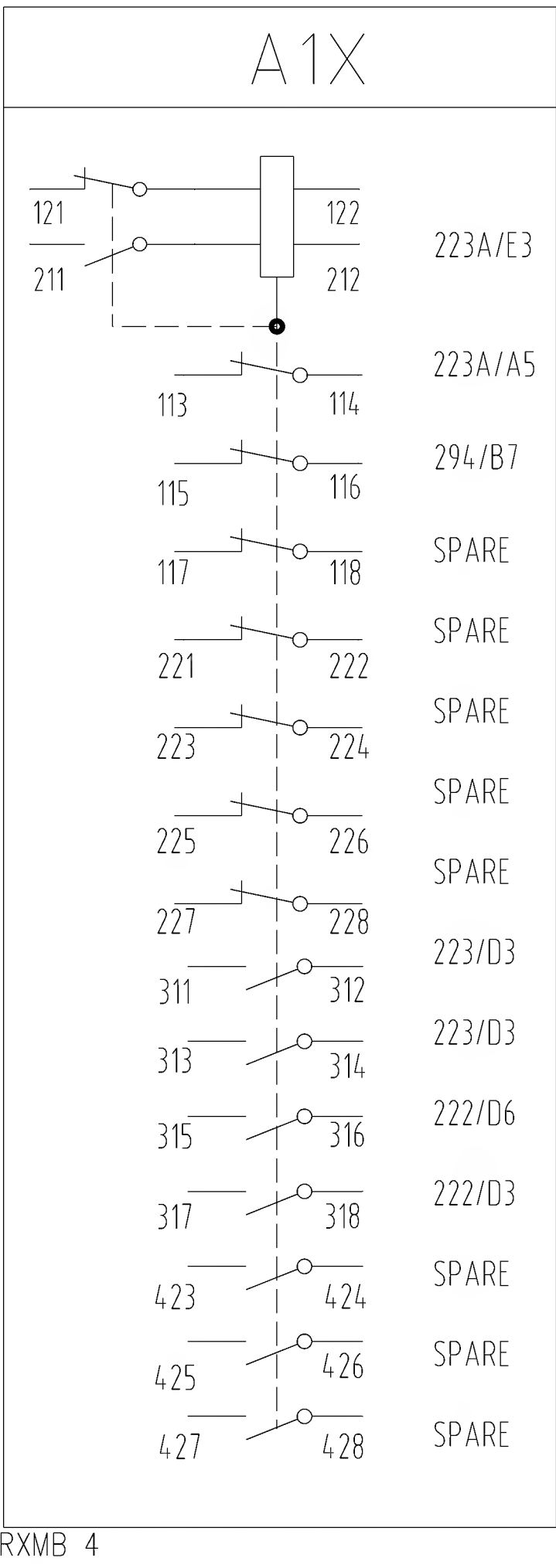
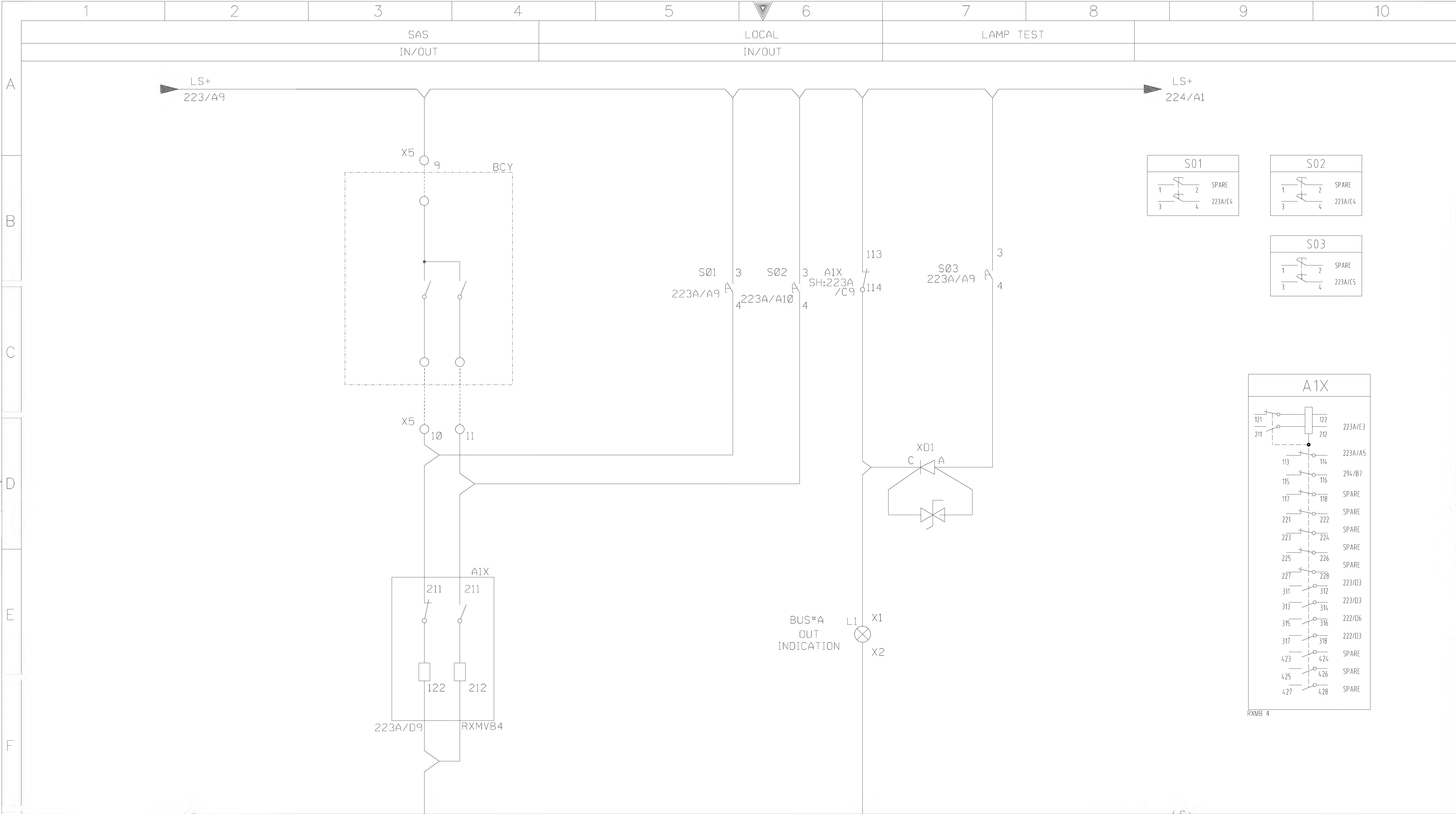
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-322964	SHT 221	CONT. 222
				01



G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		TRIP RELAYS - BUS A		الشركة الوطنية لنقل الكهرباء National Grid sa						
							13.8kV U/F LOAD SHEDDING - +UFLS01								
	01	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		RIYADH SAUDI ARABIA		-	C421	CD-322964		SHT	CONT.	01
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC								222	223	



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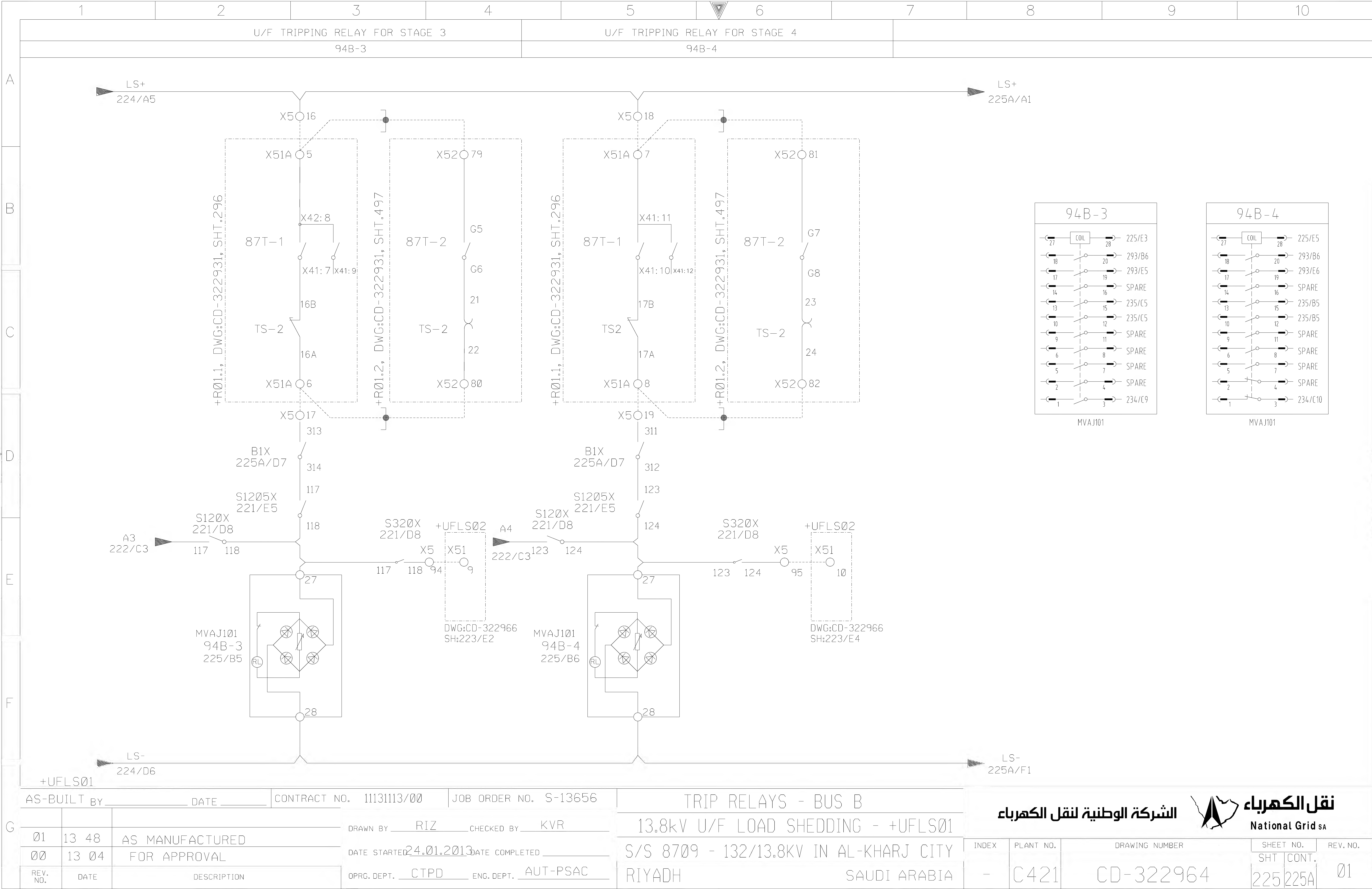


AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		IN/OUT SELECTION			الشركة الوطنية لنقل الكهرباء نقل الكهرباء National Grid sa							
G			DRAWN BY RIZ		CHECKED BY KVR		13.8kV U/F LOAD SHEDDING - +UFLS01			INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.		
	01	13 48	AS MANUFACTURED		DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY				SHT	CONT.			
	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA				223A	224			
	REV. NO.	DATE	DESCRIPTION							-	C421	CD-322964	223A	224	01		





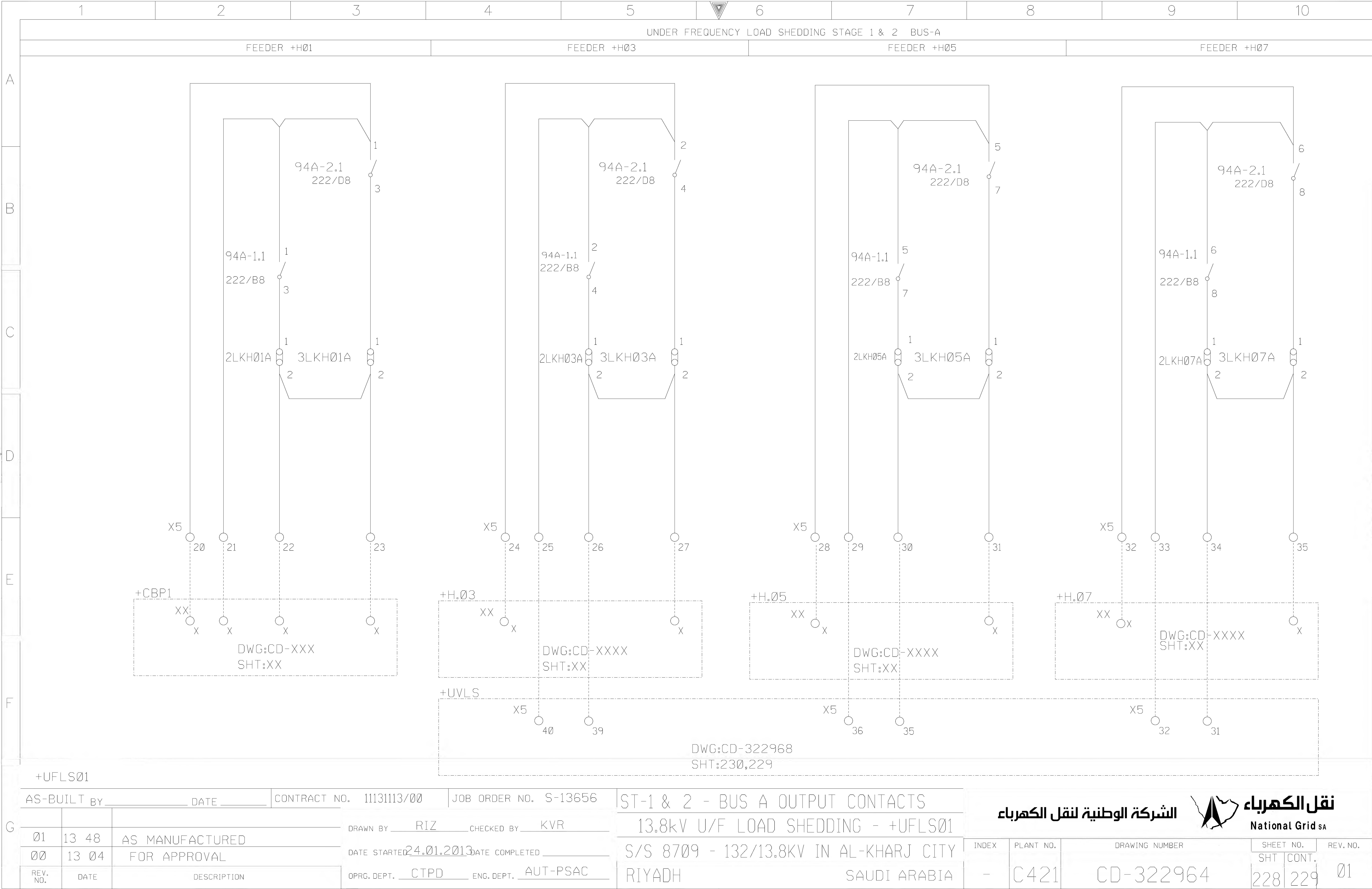


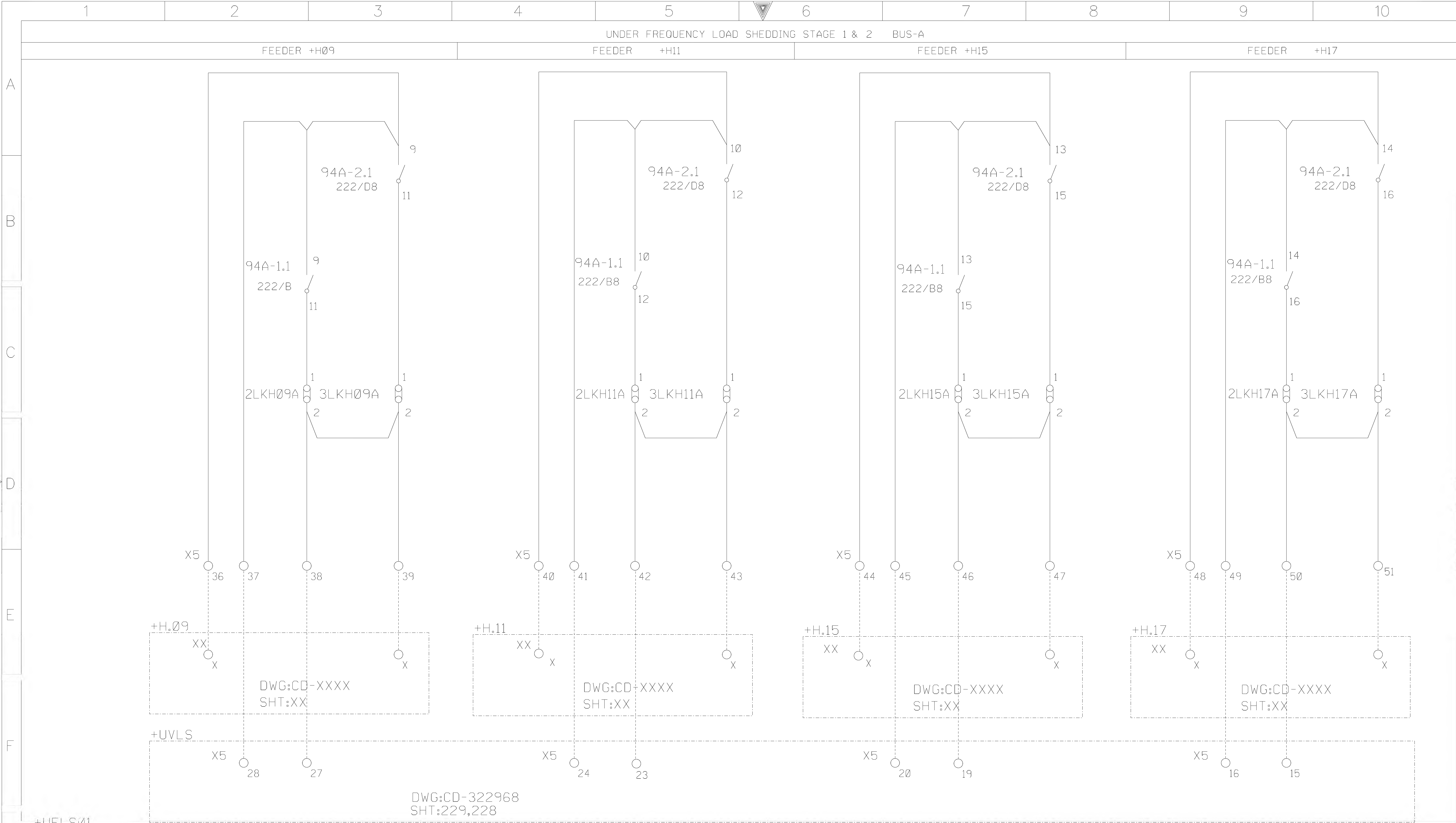



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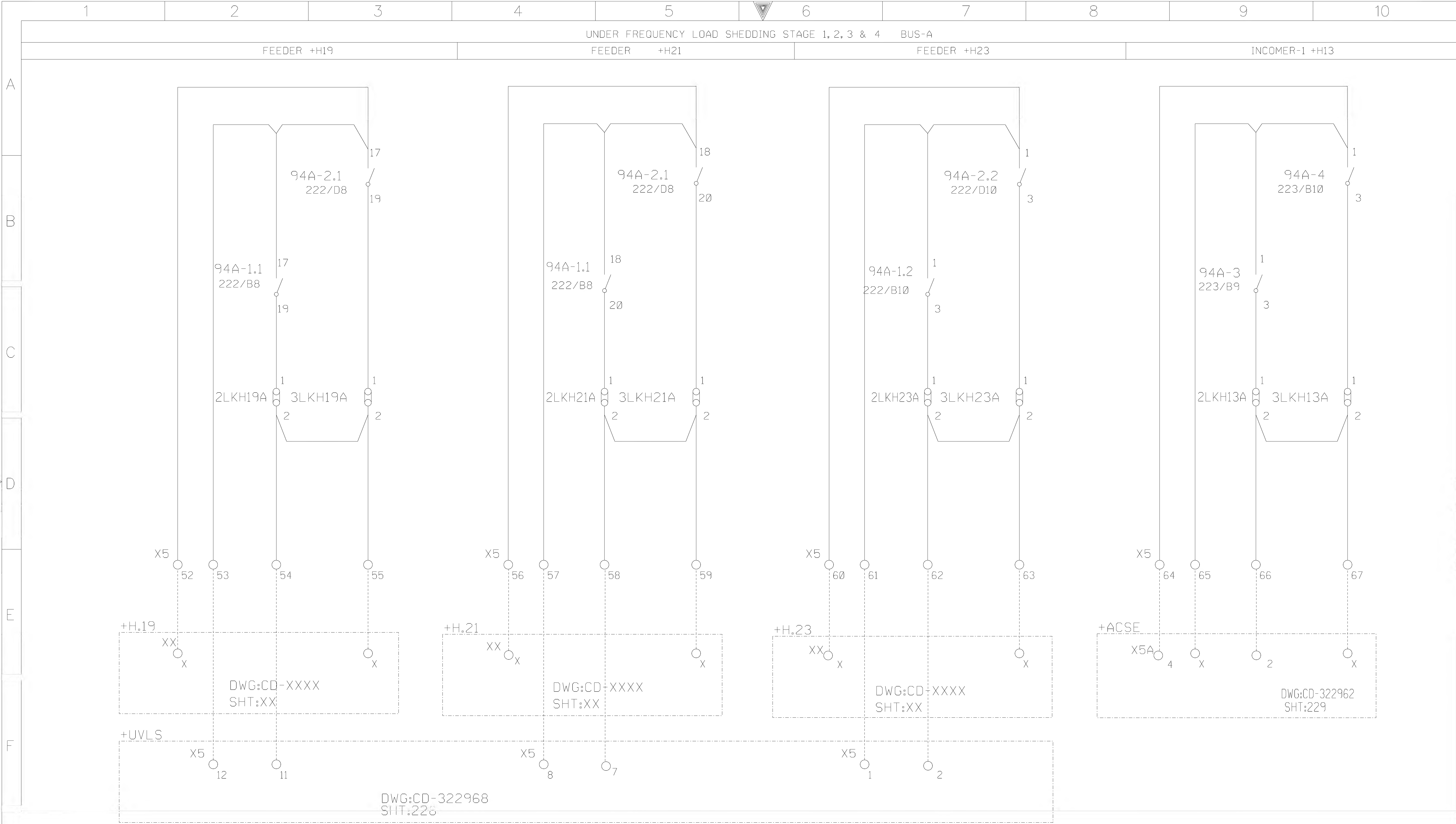







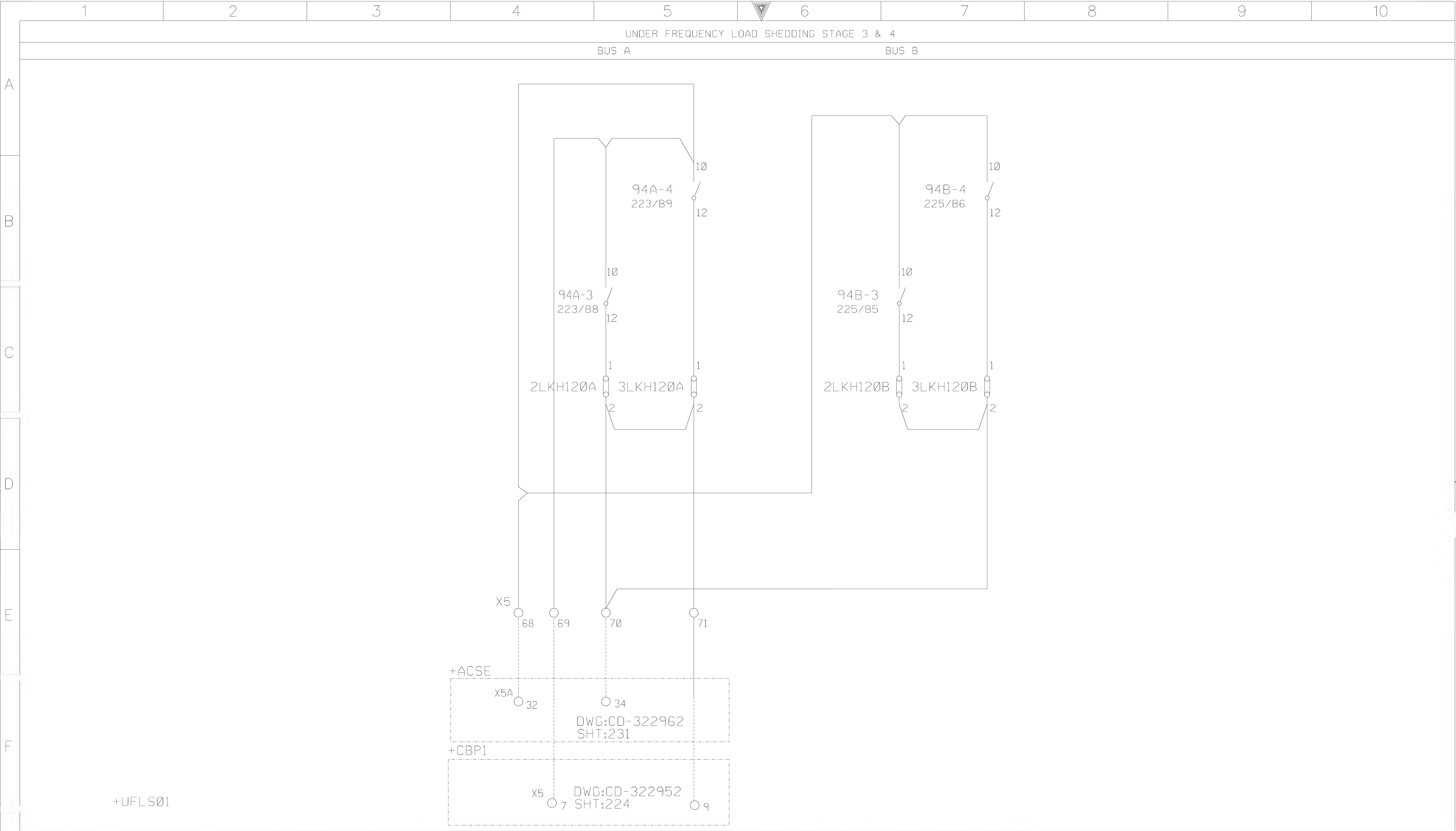
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					DRAWN BY RIZ	CHECKED BY KVR	13.8kV U/F LOAD SHEDDING - +UFLS01										
	01	13 48	AS MANUFACTURED		DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
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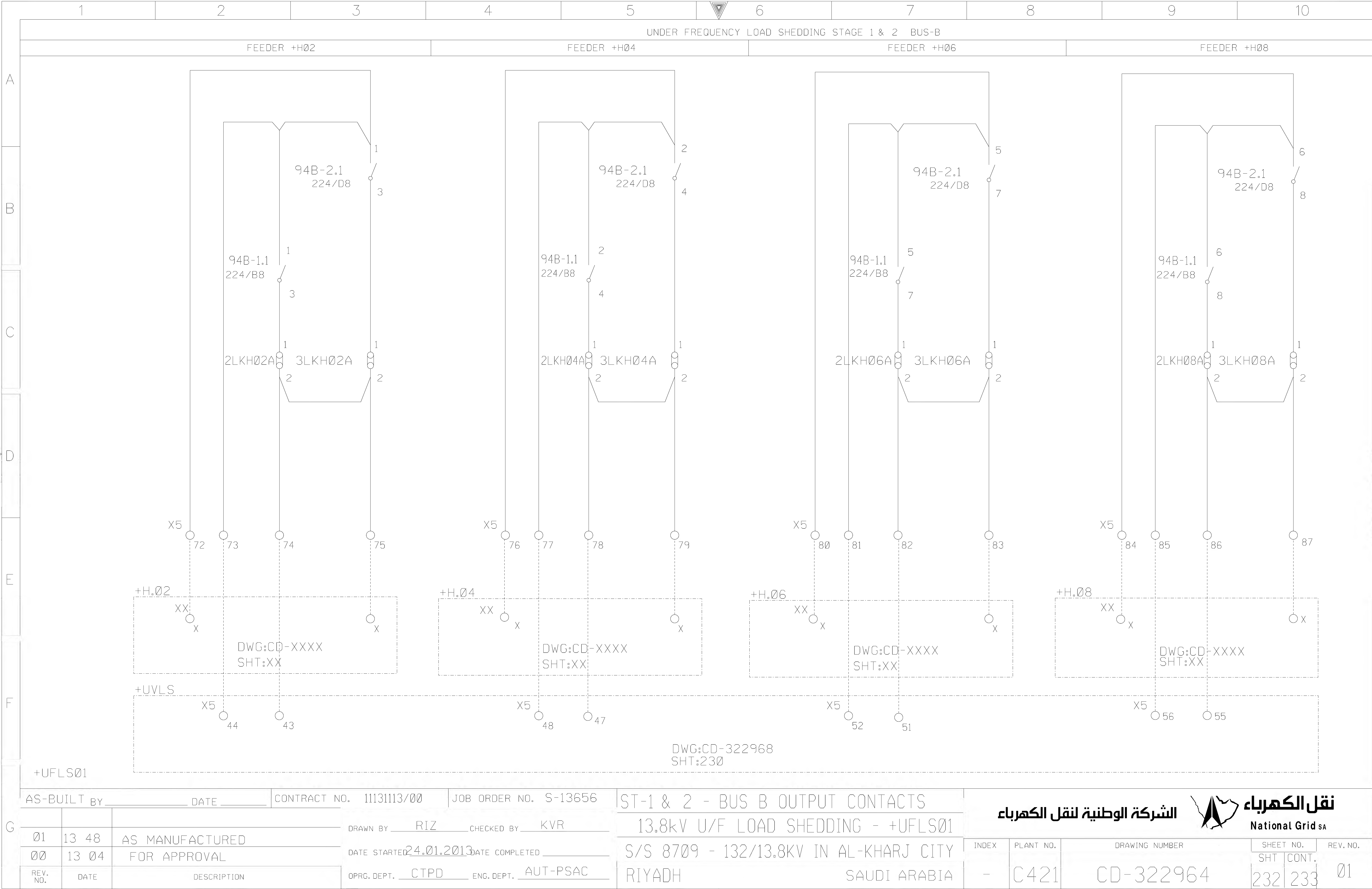
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	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA					230	231	
									-	C421	CD-322964			01

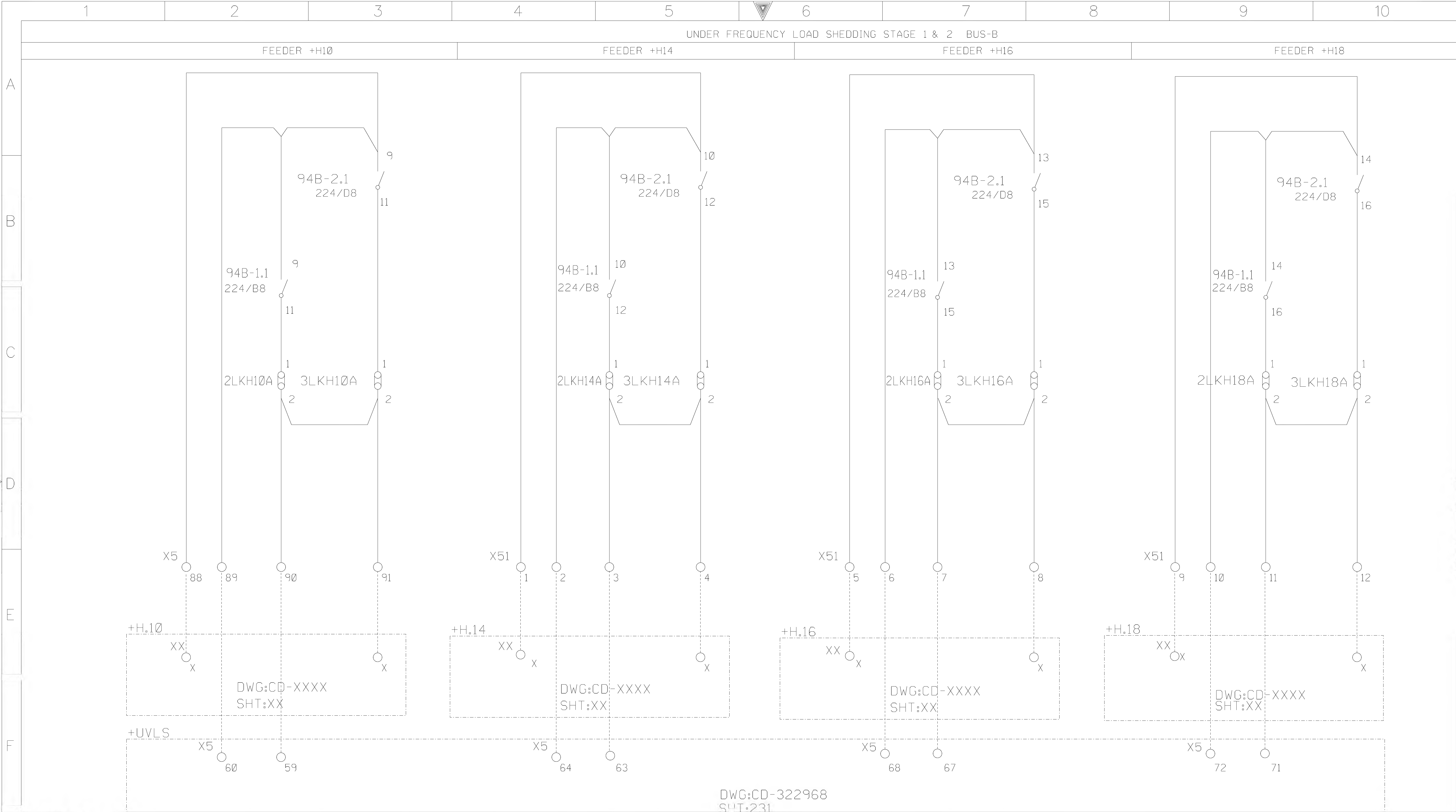




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DRAWN BY _____ RIZ _____ CHECKED BY _____ KVR _____			DATE STARTED 24.01.2013			DATE COMPLETED _____			13.8kV U/F LOAD SHEDDING - +UFLS01						
OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC _____			S/S 8709 - 132/13.8KV IN AL-KHARJ CITY			RIYADH			SAUDI ARABIA						
REV. NO. _____ DATE _____ DESCRIPTION _____			INDEX -			PLANT NO. C421			DRAWING NUMBER CD-322964			SHEET NO. SHT 231 CONT. 232		REV. NO. 01	







+UFLS01			DWG:CD-322968 SHT:231		
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		
JOB ORDER NO. S-13656			ST-1 & 2 - BUS B OUTPUT CONTACTS		
DRAWN BY RIZ CHECKED BY KVR			13.8kV U/F LOAD SHEDDING - +UFLS01		
DATE STARTED 24.01.2013 DATE COMPLETED _____			S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		
OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC			RIYADH SAUDI ARABIA		
REV. NO. DATE DESCRIPTION			INDEX PLANT NO. DRAWING NUMBER SHEET NO. REV. NO.		
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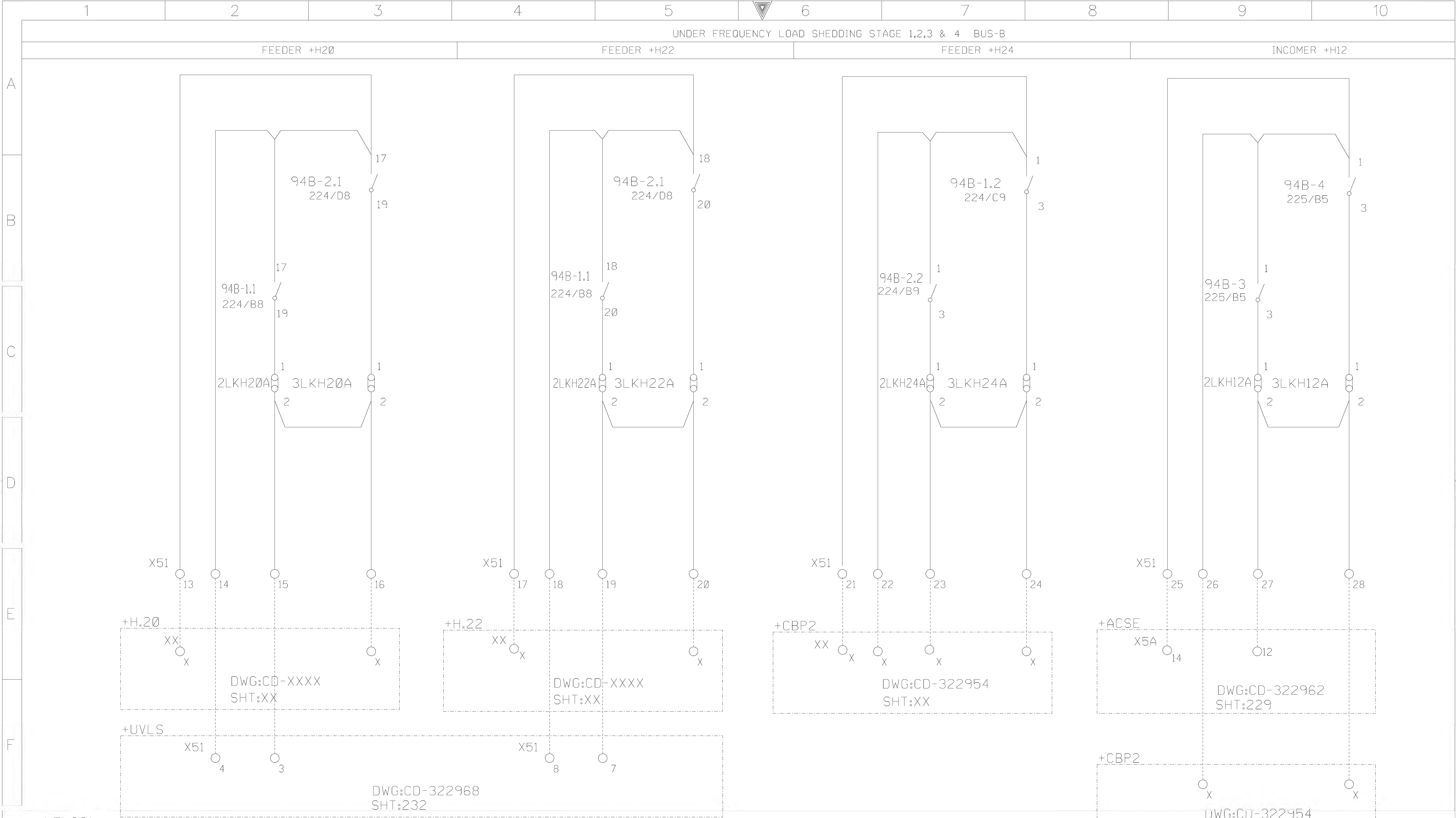
الشركة الوطنية لنقل الكهرباء

NG/D2-D (2012/01)

DMS

VECTOR

NGD200

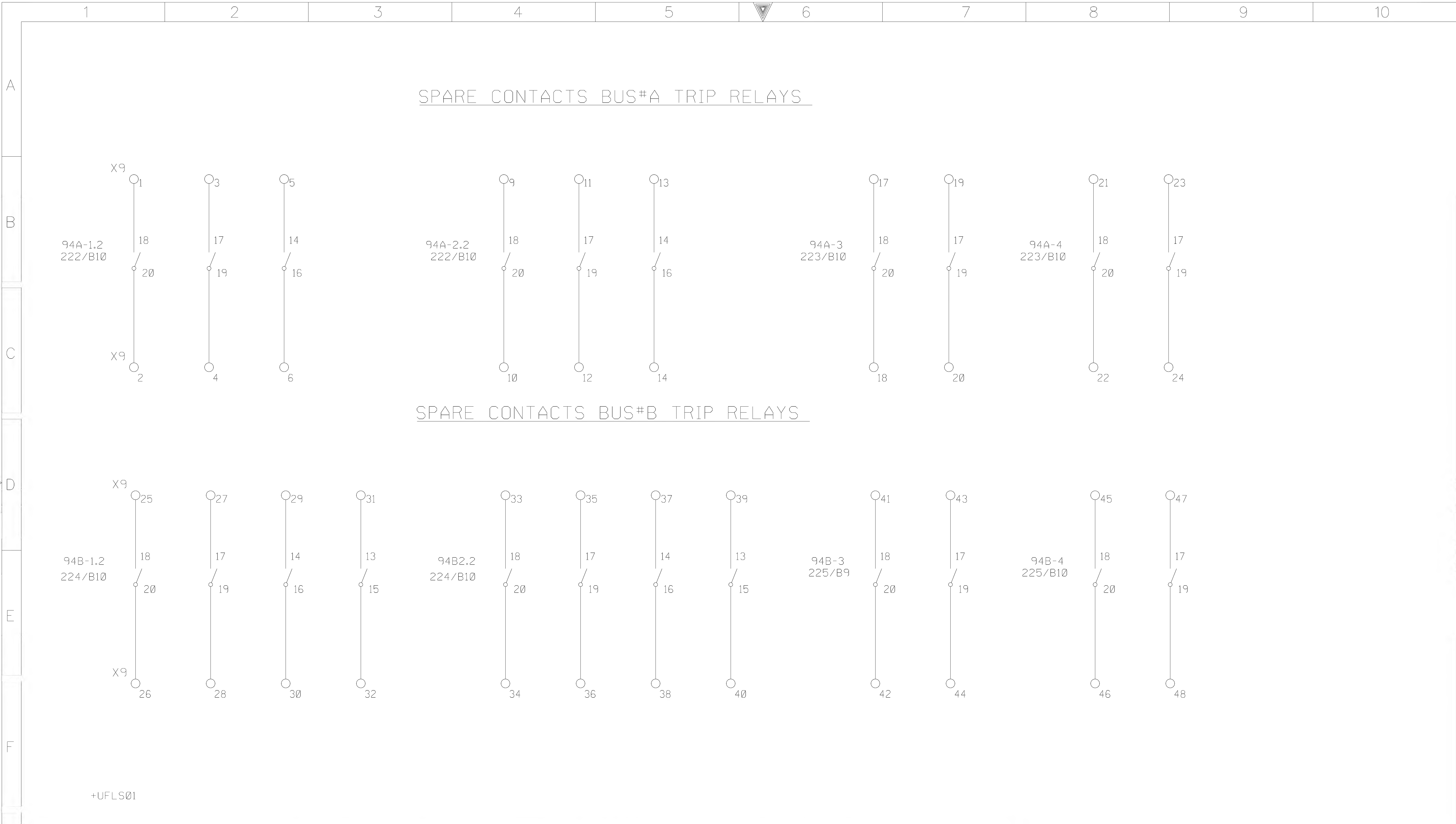


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DRAWN BY RIZ CHECKED BY KVR			DATE STARTED 24.01.2013 DATE COMPLETED _____			INDEX -			PLANT NO. C421			DRAWING NUMBER CD-322964			SHEET NO. 234			REV. NO. 01		
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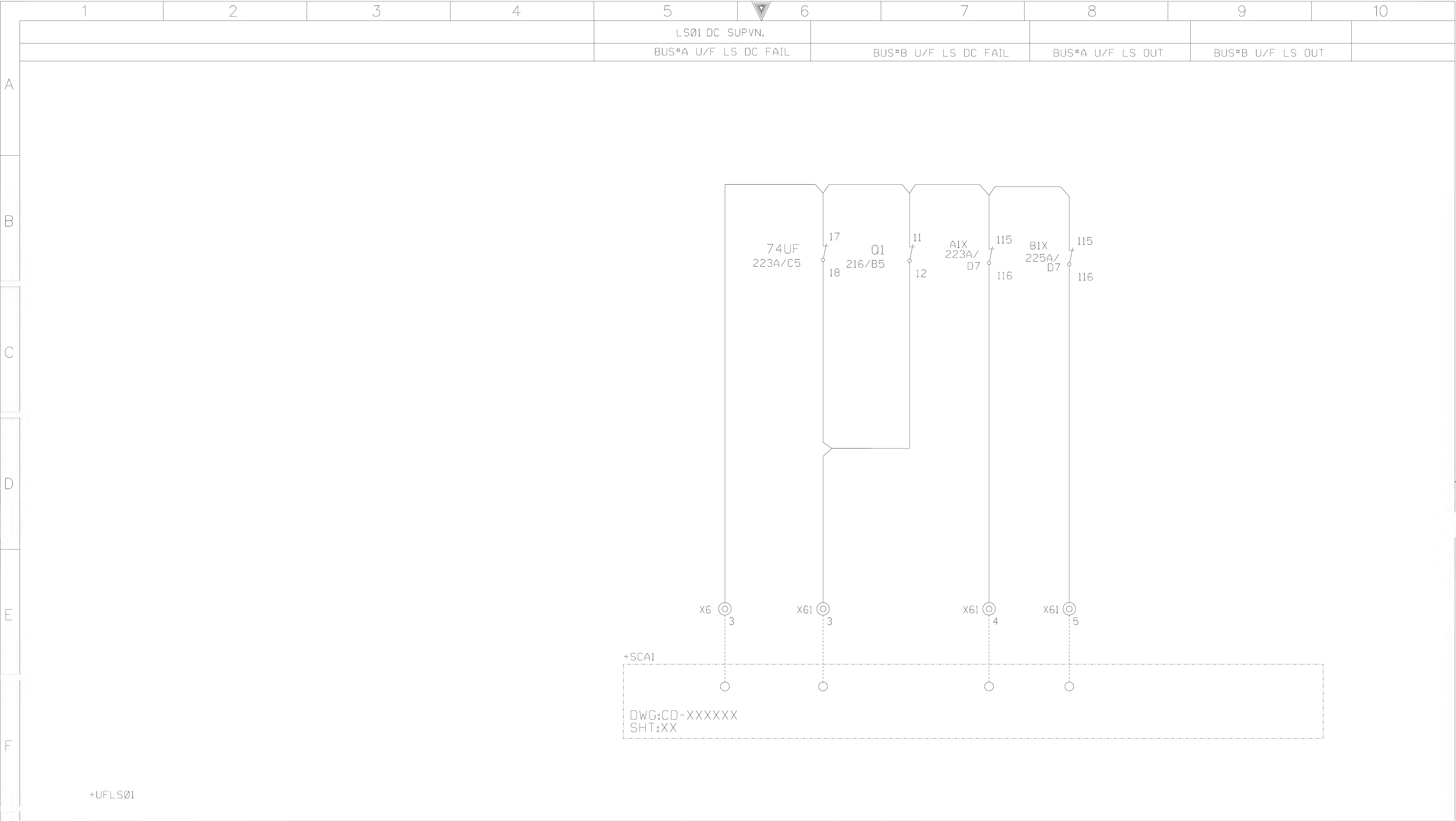
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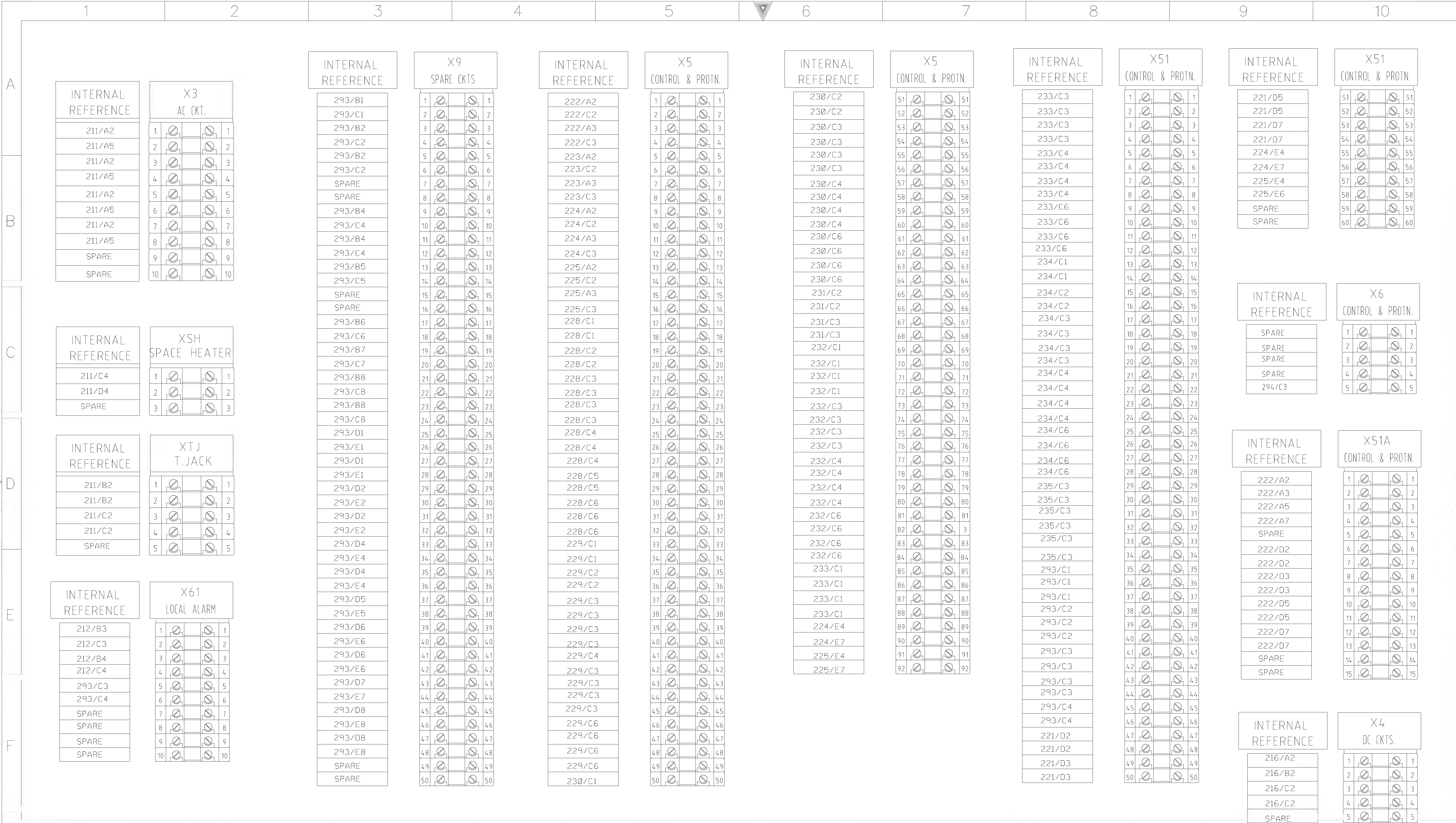




AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ALARM CIRCUIT				<div>الشركة الوطنية لنقل الكهرباء</div> <div> <b>نقل الكهرباء</b> National Grid sa</div>										
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	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY												
REV. NO.		DATE		DESCRIPTION		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH		SAUDI ARABIA		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.	
														-	C421	CD-322964		SHT	CONT.	01	
																		293	294		



G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STN. COMMON ALARM				<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid SA</div>				
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	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA						
	REV. NO.	DATE	DESCRIPTION						INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
									-	C421	CD-322964		SHT 294	CONT. 301	01



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		TERMINAL BLOCK ALLOCATION	
01 13 48 AS MANUFACTURED			DRAWN BY RIZ CHECKED BY KVR		13.8kV U/F LOAD SHEDDING - +UFLS01			
00 13 04 FOR APPROVAL			DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY			
REV. NO. DATE DESCRIPTION			OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		INDEX PLANT NO. DRAWING NUMBER SHEET NO. REV. NO.	
							- C421 CD-322964 301 NIL 01	